

July 1988

America	\$202	Indonesia	Rp3100	Portugal	Esc100
Belgium	BF40	Israel	IL550	S. Arabia	Ry700
Canada	C\$100	Japan	Y1000	Spain	Ptas160
Denmark	Dkr100	Korea	W500	Switzerland	Sfr100
France	FF100	Malaysia	RM250	Taiwan	Nt\$100
Germany	DM100	Mexico	Ps200	Thailand	Bt500
Greece	Dr100	Norway	Nkr100	Turkey	Liras100
Hong Kong	HK\$100	Poland	Zl100	USA	\$1.00
India	Rs100	Russia	Rub100		

FINANCIAL TIMES

EUROPE'S BUSINESS NEWSPAPER

No. 30,497

Thursday March 24 1988

D 8523 A

French poll: The trouble with the right, Page 14

World News

Nicaraguan talks close to deal on ceasefire

Talks between the Nicaraguan Government and US-backed Contra rebels were close to a breakthrough in the six-year-old war. Both sides were optimistic as they began a third day of negotiations. Page 4

Honduras pull-out

Pentagon officials said the US planned to begin removing 3,500 troops from Honduras as early as next Monday after they completed joint exercises with Honduran forces. Page 4

Panama strike 'illegal'

A general strike in Panama entered its third day with the Government declaring it illegal and opposition leaders urging more people to take part. Page 4

Europe 'trapped'

Western Europe was caught in a low-growth trap and its failure to offset weaker growth in the US could push the world economy into recession, according to a survey reported. Page 2

EC ship levy threat

The European Commission threatened to demand punitive port levies on unfairly under-priced Japanese and South Korean vessels visiting the EC unless the two countries agreed with the Community on fair competition in shipbuilding. Page 6

Critical Ethiopia battle

Fighting between Eritrean guerrillas and Ethiopian Government troops continued in what was seen in one of the most critical battles of the 26-year conflict. Page 3

Fresh Gulf attack

Iranian gunboats set a Cypriot cargo ship ablaze in the southern Gulf in Iran's sixth attack since Saturday when Iraq attacked two of its tankers at Kharg Island. Use of chemicals condemned. Page 3

Taiwan halts N-plant

Taiwan yielded to US pressure and stopped work on a secret plant that had been processing fuel to extract plutonium, a key component of nuclear weapons, US newspapers said. Page 3

Saudi curb pilgrims

Saudi Arabia said it would temporarily limit the size of the annual pilgrimage to Mecca and Medina was marred by bloody clashes between Saudi security forces and Iranian pilgrims in which at least 400 people were killed. Page 3

Philippines bomb

Nineteen people were wounded when a bomb exploded at a supermarket in the southern Philippines city of Davao. Muslim rebels were believed responsible. Page 3

Sri Lanka shooting

Indian peace-keeping troops and Sri Lankan police opened fire at random, injuring six civilians, after a grenade was thrown at a police station in a town in eastern Sri Lanka. Page 3

Locusts plague Africa

Huge swarms of locusts swept North and West Africa in the worst plague for 30 years and threatened to spread south of the Sahara. Page 3

Paris logs trees

City officials in Paris said they were using computers to keep tabs on the capital's 446,000 trees and unveiled a 60-year tree-replacement programme. Page 3

Business Summary

Chemical Bank to sell UK loans unit

CHEMICAL BANK, US banking group, is to sell its UK mortgage lending unit because it is tying up too much of its scarce capital resources. The subsidiary, which began mortgage lending in the UK in 1981 and which will be sold as a going concern, is Chemical's only retail banking operation outside the US. Page 17

US HOUSE BANKING Committee

published proposed legislation which would give banks some access to securities business but far more restricted powers than those suggested in rival legislation tabled by the Senate Banking Committee. Page 16

SEAGRAM, Canadian wine and spirits company

acquired Martell of France and Tropicana of the US, increased net income by 23 per cent last year. Page 17

WESTERN EUROPE is caught in a low-growth trap

and its failure to offset the weaker growth in the US could push the world economy into recession, according to the UN Economic Commission for Europe. Page 2

MORGAN GRENELL, UK merchant bank

signed a \$185m (\$354m) export credit package for the Soviet Union to finance the \$245m contract won by Simon-Carves to establish a plant automation equipment factory at Yerevan in Armenia. Page 4

WALL STREET: The Dow Jones industrial average

closed up 1.49 at 2,067.64. Page 40

LONDON: Exporting stocks were hit by renewed upward pressures on sterling

and the FT-SE 100 index lost 3.2 to 1,822.2. Page 36

STERLING: In New York the pound

closed at \$1.870. In London it closed at DM3.1050, up from Tuesday's close of DM3.0975. It had traded as high as DM3.11, but rumours of intervention by the Bank of England slowed its advance. Against other currencies, the pound closed at \$1.855 (\$1.8295), ¥231.75 (¥232.50), SF2.5650 (SF2.5650), FF10.5450 (FF10.5250). The Bank's trade-weighted sterling index closed 0.2 points higher at 77.3. Page 28

TOYO: Afternoon profit-taking

took share prices off the day's peaks, but the market closed higher on continued strong demand, especially for large capitals. The Nikkei average ended up 52.45 at 25,885.23. Page 46

DOLLAR closed in New York at

DM1.8915; ¥126.85; SF2.1385; FF7.5750 (FF7.5750) in London at DM1.8910 (DM1.8935), ¥126.80 (¥127.10); SF2.1375 (SF2.14015); FF7.57450 (FF7.57255). Page 29

THE INFORMAL Paris Club of Western creditor governments

has agreed to reschedule part of Togo's CFA Fr500b (\$1.2bn) foreign debt to stretch repayments over 15 years. Page 17

HEWLETT-PACKARD, US electronics group

and Microsoft, software company, hit back at the copyright infringement suit filed against them last week by Apple Computer. Page 17

SCHNEIDER, privately owned French industrial group

has made an outright bid worth FF4.8bn (\$1.5bn) for Talsud, an industrial automation company, topping Framatome's offer by FF400 a share. Page 18

Moscow signals tougher line over Armenian protests

BY LESLIE COLLITT IN MOSCOW AND BRUCE CLARK IN LONDON

THE SOVIET LEADERSHIP yesterday brushed aside boundary changes demanded by Armenian nationalists and signalled a tougher line towards campaigners in the republic, where protests are again growing in strength and militancy. The presidium of the Supreme Soviet, after an emergency meeting addressed by Mr Mikhail Gorbachev, the Soviet leader, issued a statement that called for law and order in Armenia and neighbouring Azerbaijan, and ignored nationalist demands for reunification with Armenia of the disputed Nagorno-Karabakh. The statement promised better social and economic conditions in the disputed area, but it fell far short of meeting the demands of

activists in Yerevan, the Armenian capital, where a group of them had earlier pledged to stage "explosive" protests this Saturday. The presidium called on the two republics to defend the interests of citizens of all nationalities. People who destabilize the situation and erode the friendship of the "fraternal Soviet peoples" would be brought to "strict justice", it said, suggesting that political activists, as well as those engaged in violence, would face a crackdown. A prominent Armenian activist, Mr Paruyr Khachikyan, was arrested in Moscow on Tuesday and sent back to Yerevan. Many telephone lines between Moscow and Yerevan appeared to be cut, and Westerners telephoning Yerevan said their contacts had become nervous about speaking. An apparently orchestrated series of protests for observance of the Soviet constitution had been sent to the presidium by all the Soviet republics except Armenia and Azerbaijan. Hundreds of thousands of people demonstrated in Yerevan last month to back demands for the return to Armenia of Nagorno-Karabakh, most of whose inhabitants are ethnic Armenians. At least 32 Armenians were killed in the Azerbaijan city of Sumgait, and Armenian campaigners have alleged that the death toll was far higher. The presidium criticized the organizers of demonstrations in Yerevan this week, referring to "self-styled groups" who advocated the "re-creating" of borders which could lead to "unpredictable consequences". One of the statement's targets appeared to be Mr Igor Muradov, an Armenian activist who since the weekend has been addressing a series of increasingly angry meetings in Yerevan. The atmosphere there has worsened since Monday's publication in Pravda of an article sharply criticizing the Armenian nationalists. Western Armenian activists said 15,000 people gathered outside a press building in Yerevan to protest against the newspaper's comments, which they called a "provocation" against Mr Gorbachev. Pravda's Armenia correspondent yesterday dissociated himself from the article.



UK building society in move to compete with banks

By David Barchard in London

ABBEY National, Britain's second largest building society, yesterday became the first to announce plans to turn itself into a limited company. Building societies are the chief source of house financing in the UK. The Abbey National is the first to take full advantage of 1986 legislation opening up a much greater range of business activities to building societies and allowing them to raise funds on the money markets. The move will make Abbey National a full competitor of Britain's four major UK clearing banks. It will involve a stock market flotation which, it has been estimated by Morgan Grenfell, the merchant bank, could be worth £1.8bn (\$3.3bn). That would give Abbey National a higher capitalisation than either Midland Bank, the second smallest of the clearers, or Lloyds Bank. Its assets total £28.4bn. Sir Campbell Adamson, chairman, indicated yesterday that the building society, would not call itself a bank, although it will have to acquire a banking licence and come under Bank of England regulation. Building societies are currently mutual bodies owned by their members - savers and borrowers with them. They were given the power to change their status to limited companies in the 1986 Building Societies Act, although detailed regulations to enable this have yet to be published by the UK Treasury and approved by Parliament. These are expected by the summer. The legislation reflected pressure from societies for more freedom to expand into other areas following the increased competition they were facing from banks on mortgage lending. Since the Act, societies have diversified into a wide range of non-traditional activities, including estate agency, unsecured personal lending, cheque current accounts and credit cards. But as mutual bodies they still face limits on moving into certain business areas and are unable to go to the equity market for funds. Abbey National has 98 estate agency offices, and has begun to diversify outside the UK, setting up subsidiaries in Jersey and Gibraltar. It has also announced plans to join both the Visa Organisation and the Joint Credit Card Company, enabling it to issue credit cards through either the Visa or the Mastercard/Access networks. To complete its move into the retail banking market, earlier New foundations, Page 8; Lex, Page 16



George Shultz (right) greets his Soviet counterpart Eduard Shevardnadze at the US State Department yesterday

Reagan sets date for Moscow arms summit

BY LIONEL BARBER IN WASHINGTON

PRESIDENT Ronald Reagan is to visit Moscow for his fourth summit meeting with Mr Mikhail Gorbachev, the Soviet leader, between May 29 and June 2. The planned centrepiece of the visit is the signing of a treaty to cut the two superpowers' long-range nuclear arsenals by 50 per cent, but it is not clear if an agreement will be ready in time. Mr Reagan announced a firm date for the Moscow summit after his first round of talks with the Mr Eduard Shevardnadze, the Soviet Foreign Minister, who is holding three days of pre-summit talks in Washington. Asked if the US and the Soviet Union might be able to conclude a strategic arms accord by May, Mr Reagan told reporters: "I have no way to answer that now." Mr Reagan, 77, will be the first US president to set foot on Soviet soil since President Gerald Ford, also a Republican, went to Vladivostok in 1974 to sign a tentative long-range missile pact. Mr Shevardnadze said: "Now the dates have been set, we will work on making the content interesting." The Soviet Foreign Minister added that there had been progress on the issue of Afghanistan and the promised withdrawal of Soviet troops, but he did not elaborate. The agreement on a superpower summit in Moscow follows earlier meetings between Mr Reagan and Mr Gorbachev in Geneva, Reykjavik and Washington, where last December the two leaders signed a treaty eliminating their intermediate nuclear forces (INF), the first substantial arms reduction pact of the nuclear age. Aside from the more complex question of long-range missiles, both sides are involved in intense talks on Afghanistan. The most difficult issue turns on a US demand that Moscow halt military aid to the Kabul regime in "exchange" with a US cut-off of aid to the Afghan resistance. Mr Reagan is under intense bipartisan pressure from the US Senate to keep supplying the rebels with military aid until well after the promised Soviet withdrawal of 115,000 troops starts to take place. Mr Shevardnadze made clear on Tuesday that the Soviets would prefer an internationally negotiated withdrawal under the auspices of the United Nations sponsored talks in Geneva. Yesterday's announcement of a Moscow summit came exactly five years after Mr Reagan, a staunchly anti-Communist president, unveiled his Strategic Defence Initiative, (SDI).

Both sides are involved in intense talks on Afghanistan. The most difficult issue turns on a US demand that Moscow halt military aid to the Kabul regime in "exchange" with a US cut-off of aid to the Afghan resistance. Mr Reagan is under intense bipartisan pressure from the US Senate to keep supplying the rebels with military aid until well after the promised Soviet withdrawal of 115,000 troops starts to take place. Mr Shevardnadze made clear on Tuesday that the Soviets would prefer an internationally negotiated withdrawal under the auspices of the United Nations sponsored talks in Geneva. Yesterday's announcement of a Moscow summit came exactly five years after Mr Reagan, a staunchly anti-Communist president, unveiled his Strategic Defence Initiative, (SDI).

Oil prices rise as Opec seeks talks

BY ANDREW GOWERS AND STEVEN BUTLER IN LONDON

OIL PRICES jumped last night, hinting at possible action by Opec to shore up the market, rose on the announcement of the surprise meeting by moving to convene an urgent meeting of its price committee to consider possible production cuts. Mr Hisham Nasser, the Saudi Oil Minister, requested an immediate meeting of the price-monitoring committee - comprising himself and the ministers of Nigeria, Venezuela, Indonesia and Algeria - to "stop any confusion" in the market. His statement, which followed an earlier Nigerian announcement that the committee would meet in early April in Vienna, appeared to reflect a surprising about-face by Saudi Arabia. Previously, Saudi Arabia had been holding out against either a price committee meeting or production cuts, despite the recent weakness in prices. The price of North Sea Brent crude, which has been swinging between \$14 and \$15.50 in recent weeks amid a string of rumours

Oil prices rise as Opec seeks talks

BY ANDREW GOWERS AND STEVEN BUTLER IN LONDON

hinting at possible action by Opec to shore up the market, rose on the announcement of the surprise meeting by moving to convene an urgent meeting of its price committee to consider possible production cuts. Mr Hisham Nasser, the Saudi Oil Minister, requested an immediate meeting of the price-monitoring committee - comprising himself and the ministers of Nigeria, Venezuela, Indonesia and Algeria - to "stop any confusion" in the market. His statement, which followed an earlier Nigerian announcement that the committee would meet in early April in Vienna, appeared to reflect a surprising about-face by Saudi Arabia. Previously, Saudi Arabia had been holding out against either a price committee meeting or production cuts, despite the recent weakness in prices. The price of North Sea Brent crude, which has been swinging between \$14 and \$15.50 in recent weeks amid a string of rumours

Mitsubishi drops bid for S African steel project

BY ANTHONY ROBINSON IN JOHANNESBURG

JAPAN'S Mitsubishi Corporation has dropped out of tendering for a \$500m (\$380m) South African steel mill project in what is seen as an attempt to head off growing criticism of Japan's stake in the South African economy. Iscor, the state-controlled iron and steel company which put out tenders for a hot-rolled strip mill to be built at its Vanderbijlpark works, south-east of Johannesburg, said the Japanese company had cited internal problems of "an organisational and technical nature" for its decision. But the decision closely follows a call by Keidanren, Japan's largest business organisation, for Japanese companies to restrain voluntarily their business with South Africa. Keidanren's action follows

Mitsubishi drops bid for S African steel project

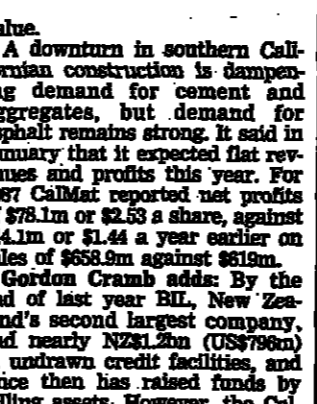
BY ANTHONY ROBINSON IN JOHANNESBURG

JAPAN'S Mitsubishi Corporation has dropped out of tendering for a \$500m (\$380m) South African steel mill project in what is seen as an attempt to head off growing criticism of Japan's stake in the South African economy. Iscor, the state-controlled iron and steel company which put out tenders for a hot-rolled strip mill to be built at its Vanderbijlpark works, south-east of Johannesburg, said the Japanese company had cited internal problems of "an organisational and technical nature" for its decision. But the decision closely follows a call by Keidanren, Japan's largest business organisation, for Japanese companies to restrain voluntarily their business with South Africa. Keidanren's action follows

Brierley launches \$1.2bn takeover offer for CalMat

BY RODERICK ORAM IN NEW YORK

CALMAT, a California building materials group, has received a \$40 a share, \$1.2bn takeover offer from Brierley Investments (BIL), the main corporate vehicle of Sir Ron Brierley, the New Zealand entrepreneur. BIL - making its largest bid yet - says it is interested in CalMat's large but undervalued land holdings in southern California and Arizona. Industrial Equity (Pacific), a Hong Kong associate of BIL, already owns a 19.2 per cent stake in CalMat and two of its North American executives sit on the CalMat board. Attempts by IEP to increase its influence on CalMat led to a standstill agreement between them last December, but the Brierley camp retained the right to launch a tender offer. In return, CalMat dropped lawsuits alleging that an IEP executive had misappropriated insider information while sitting on CalMat's board. CalMat said its directors would meet promptly to measure BIL's proposals against its own for improving shareholders' value. It had already "taken significant steps" over the past three years through reinvesting funds from



Sir Ron Brierley: consolidating his businesses

disposals in "higher margin core businesses." The company, formed in June 1984 by the merger of California Portland Cement and Conrock, produces cement, concrete, aggregates and asphalt and develops land. Some land holdings, originally bought as a source of raw materials, have become ripe for development. Analysts estimate these could be worth three or four times the \$69m balance sheet value. A downturn in southern Californian construction is dampening demand for cement and aggregates, but demand for asphalt remains strong. It said in January that it expected flat revenues and profits this year. For 1987 CalMat reported net profits of \$78.1m or \$2.53 a share, against \$44.1m or \$1.44 a year earlier on sales of \$658.9m against \$618m. Gordon Cramb adds: By the end of last year BIL, New Zealand's second largest company, had nearly NZ\$1.2bn (US\$780m) in undrawn credit facilities, and since then has raised funds by selling assets. However, the CalMat cash bid is conditional. IEP bought into CalMat, Sir Ron's biggest US investment, at about \$28.30 a share. His commitment to the building materials industry looked less firm earlier this month, however, when BIL agreed to sell Winstonone, a leading New Zealand supplier, for NZ\$444m. Since the October stock market crash wiped nearly NZ\$280m off the value of his companies' worldwide holdings, Sir Ron has been seeking to consolidate the businesses. Lex, Page 16

SEND FOR YOUR FREE VIDEO INTRODUCTION TO THE FUTURES AND OPTIONS MARKETS.

You've certainly heard of the futures and options markets. You probably know that by investing in them, you can make substantial profits whether the markets are rising or falling. And you may even have realised that with today's uncertain stock market, putting some of your assets to work in futures and options may be the best financial decision you could make. Even so, you may well be hesitating before embarking on an entirely new kind of investment. If so, we'd like to offer you a copy of GNI's 20-minute VHS videotape "Introduction to the Futures and Options Markets". It shows you the markets in action. Explains the potential rewards - and the risks - objectively. Tells you why the markets are serving an increasing number of investors across the world. And shows you just how GNI - one of the leading futures trading houses in London - goes about helping its institutional and private clients. If you have assets of £15,000 or more that you could consider exposing to the opportunities in today's futures and options markets, send the coupon or telephone Mark Evans on 01-578 7171.

Mark Evans, GNI Ltd., 1 London Bridge Walk, London SE1 2XK or GNI (Jersey) Ltd., 14 Britannia Place, Bath St., St. Helier, Jersey, CI. I am in a position to consider futures and options investment through GNI. Please send me a copy of your video. FT 24/83

NAME _____ ADDRESS _____

GNI INTERNATIONAL COMMODITIES

CONTENTS	
Europe	2
Companies	18
America	4
Companies	17
Overseas	3
Companies	20
World Trade	5
Britain	6-10
Companies	21-26
Agriculture	28
Auto - Reviews	13
World Guide	18
Commercial Law	12
Commodities	28
Crossword	29
Editorial comment	19
Eurobonds	19
Euro-options	20
Financial Futures	20
Gold	20
Int'l Capital Markets	19
Letters	18
Lex	16
Management	13
Money Markets	20
Observer	14
Raw Materials	20
Stock markets - Sources	27, 40
Technology	27
Unit Trusts	20, 22
Watches	14
World Index	28

THE MAN WHO HAS STOLEN THE BONN LIMELIGHT

Oskar Lafontaine, one of the two deputy SPD chairmen, is in West German headlines, Page 2

Johannesburg: South African church-state conflict likely to worsen	8
Business Law: The PLO's dilemma in the US courts	12
Editorial comment: Risks in going public: Terror and television	14
Economic viewpoint: The need for a European currency	16
Lex: Abbey National; BAT; Woolworth	16
Technology: Volatile alliances born of market growth	27
Car of the future: Survey	Section III
United Arab Emirates: Survey	Section IV

Red Cross condemns chemicals use in Iraq

By Andrew Gowers, Middle East Editor

INTERNATIONAL condemnation of the renewed use of chemical weapons in the Iran-Iraq war intensified yesterday as Iran fired another missile on Baghdad and Iranian gunboats attacked a Cypriot tanker in the Gulf.

The International Committee of the Red Cross issued a strongly-worded statement in Geneva condemning the use of the weapons following evidence of severe casualties from chemical attacks in the town of Halabja in an area of north-eastern Iraq occupied by Iran, and said it had taken "urgent steps" to bring about an end to their use.

The attacks, in which Iran says some 5,000 Iraqi civilians were killed last week, have been widely blamed on Iraq. Baghdad has consistently denied having used chemical weapons, despite evidence to the contrary published by UN inspection missions.

The ICRC said: "The use of chemical weapons, whether against military personnel or civilians, is absolutely forbidden by international law and is to be condemned at all times." It has told Iran it is ready to send emergency assistance.

Meanwhile, Iran said it had fired a last missile at a military target in Baghdad in retaliation for an Iraqi missile attack on Tehran on Tuesday.

In the Gulf, gunboats hit the Cypriot tanker *Odyseas II* in the sixth Iranian attack since Sunday.

Moves were also afoot yesterday to try to defuse trouble at this year's Hajj, the Muslim pilgrimage to the Saudi holy cities of Mecca and Medina.

After a meeting of Islamic foreign ministers in Amman, Prince Saud al-Faisal, the Saudi Foreign Minister, announced that the number of pilgrims this July would be fixed by quotas.

This is thought to be a ploy to restrict the size of the Iranian contingent, which caused serious riots last year. Normally 150,000 Iranian pilgrims go on the Hajj.

South African church-state conflict likely to worsen

By ANTHONY ROBINSON
in JOHANNESBURG

THE over-arching South African police while attempting to lead a protest march on Parliament, the Rev Allan Boesak, the Coloured Dutch Reformed Church leader, Catholic Archbishop Stephen Naidoo and other senior clerics, was re-informed when, for good measure, the police water-hosed other churches in front of the world's television.

The church-state conflict arises from the Government's increasingly severe restrictions on formal black political activity. Ultimately South Africa has politicised churches, schools, trade unions and the like because blacks are deprived of formal political representation or the vote in national politics.

The forces which led to political apartheid are reflected in institutions such as the churches which mirror the tensions of an ethnically and politically polarised society. The divisions are no longer exclusively ethnic but are increasingly ideological and political. The white Dutch Reformed Church for example is now split along lines which reflect the political split between the nationalist and conservative parties.

So is the Anglican Church, which has experienced an exodus of well-heeled, traditional English-speaking white members in response not to the election of a black man as Archbishop but to the defection of a black man, because of his political stance in favour, for example, of disinvestment and sanctions.

Although Archbishop Tutu's personal warmth, humour and religiosity have endeared him to some originally sceptical white members of what is now an overwhelmingly black church, his stewardship has also provoked opposition from some influential black Anglicans.

It is a church which includes Mr Oliver Tambo, the ANC leader in exile, among its members and also embraces

Chief Mangosuthu Buthe, his rival Inkatha leader. But the Archbishop, a former patron of the United Democratic Front, ostentatiously excluded Chief Buthe from the enthronement guest list two years ago. Instead the Archbishop invited celebrities from abroad, especially the US, where his skill with the witty one-liner and mastery of television leaves the tongue-tied Afrikaner spokesmen for Pretoria in the shade.

Stripped to basics the personal and political resentment of men such as President Botswana, whose own experience of the media has left him with a dangerously volatile mixture of contempt and fear, boils down to anger that the Archbishop's dogged attempt to create

a more just, fairer society are being sold short by men like Archbishop Tutu and Dr Boesak.

For the President and many who think like him the nation's political priests are tantamount at best to Stalin's "useful idiots" or at worst to closet Marxists hiding behind "the structures and the cloth of the Christian church".

Such are the ironies of South Africa. The overwhelming majority of the population profess the Christian faith according to their different lights. The thriving Jewish, Moslem and other communities all pray for peace and reconciliation. But the traditions and customs which reflect the wider divisions of society remain unaltered.

But in a barrage of remarks over the past two days Mr Keating and other economic ministers and officials have made it clear that any review would only affect presentation, not policy.

Mr Keating yesterday admitted the loss in New South Wales was not only because of a feeling that, after 12 years, it was time for a change of state administration. He said it also reflected the fall in living standards as the country grappled with its current account deficit.

But he insisted that the Federal Government's strategy to deal with that external imbalance - tight monetary and fiscal policy - was producing positive results and had to be continued.

The current account, he declared, was the main game. "Win it and we will lift living standards for all. Lose it and we not only forfeit political survival but, more importantly, we fail our traditional constituency."

Eritreans claim big victory over Ethiopians

By MICHAEL HOLMAN, AFRICA EDITOR

FIGHTING between the guerrilla army of the Eritrean People's Liberation Front and troops of the Ethiopian Government was reported to be continuing yesterday in what is seen as one of the most critical battles in the 26-year conflict.

Earlier this week the EPLF announced that it had captured the town of Asbet during a big offensive launched last week. The guerrillas claimed that three Ethiopian divisions had been "put out of action", and two Soviet officers had been captured. A Soviet spokesman in Moscow confirmed this week that the officers had "gone missing".

Speaking on Monday from an EPLF base in Eritrea, Professor Basil Davidson, the British historian, told BBC radio that the EPLF had won "a major victory". The Front had captured 20 Soviet-built tanks and taken "enormous numbers" of prisoners, he said.

Prof Davidson estimated that one-third of the Ethiopian forces in Eritrea had been "wiped out", though he expected the Government to regroup its forces for a further battle.

EPLF officials said yesterday that fighting was continuing 20km from Keren, Eritrea's second largest town.

Most observers believe, however, that the EPLF cannot win the war militarily. Instead they must hope that the cost of the conflicts in Eritrea and Tigray proves to be one of the factors leading to a change of government in Addis Ababa, which might in turn lead to a negotiated end to the fighting.

The EPLF and its predecessor, the Eritrean Liberation Front, have been seeking the restoration of Eritrea's autonomous status lost in 1962 after the Eritrean national assembly voted to merge with Ethiopia. Eritrean nationalists argued that the Addis Ababa Government, then led by Haile

Selassie, had manipulated the outcome and what has become Africa's longest war got under way.

At stake for the Soviet and Cuban-backed Government of Mengistu Haile Mariam, which overthrew Haile Selassie in 1974, are the post-1962 boundaries of a state challenged by guerrilla movements in the province of Tigray as well as Eritrea. A vital strategic concern for the Government is the fact that Ethiopia's main port of Massawa is in Eritrea and there is an important Soviet naval base on the Dahlak Islands, lying off Massawa in the Red Sea.



Taiwan halts N-fuel work

By our Foreign Staff

TAIWAN HAS yielded to US pressure to stop work on a secret installation that could have processed fuel to extract plutonium, a key component of nuclear weapons, according to American press reports yesterday.

US officials quoted in the New York Times said the effort to build an installation capable of plutonium extraction violated a secret commitment to the US that it would not undertake research to develop atomic weapons.

US, Egypt in arms accord

THE UNITED States and Egypt have agreed on closer co-operation in arms development, raising Cairo to the same military partnership with Washington as Israel and Nato allies, Pentagon officials said yesterday. Reuter reports from Washington.

The officials said Mr Frank Carlucci, US Defence Secretary, and Abdel-Halim Abu Ghazala, Egyptian Defence Minister, were going to sign a memorandum of understanding on the agreement at the Pentagon late yesterday.

They said that the US-Egypt memorandum would facilitate exchanges of scientists and engineers and co-operation in research, development and procurement of military equipment between the two countries.

Egypt, which for years depended on the Soviet Union for its military equipment, has recently become one of America's closest Arab friends in the Middle East.

Israel and the United States signed a similar 10-year memorandum of understanding at the Pentagon last December.

Egyptians watch Nasser's life-and-death melodrama

By TONY WALKER in CAIRO

EGYPTIAN melodramas, heavily embellished with family tragedy and intrigue, are almost cliché on the television screens of the Arab world. But in Cairo these days the real thing is being substituted for fantasy in the case of Mr Khaled Abdel Nasser, son of the late President. He is accused of complicity in the murder of Israeli diplomats and the wounding of American officials.

It would be tempting to present the case as an Egyptian version of Dallas, the American soap opera, if there were not life-and-death issues involved. The imaginative Egyptian press has excelled itself in the re-telling of juicier elements of the scandal that has touched some of the country's leading families.

There have been stories of sexual orgies, wife-beating, cocaine use and bloody familial conflict. They have involved some of those (though not Mr Khaled Nasser) accused of membership of the Egypt's Revolution group which claimed responsibility for a series of shootings between 1984 and 1987.

Beyond the scandal and the gossip, however, the case has a deeply worrying political dimension for the Government of President Hosni Mubarak.

The bringing to trial of President Gamal Abdel Nasser's son over alleged involvement in actions against Israelis and Americans has stirred nationalist and xenophobic passions in a country burdened by its Nasserite past and politically sensitised by conflict in the West Bank and Gaza.

Mr Mubarak has felt obliged on a number of occasions recently, amid a clamour of criticism from almost all opposition groups, to defend the right of the prosecutor's office to commit Mr Khaled Nasser and 19 others to trial.

The President's defence of the independence of the judiciary has not quietened the protests. Professor Saad Ibrahim, one of Egypt's leading sociologists, believes the reaction to the Nasser case is revealing of current Egyptian attitudes.

"The conflict is between legality and legitimacy," he says. There is a widespread feeling that enough violations have been committed by the Israelis supported by the Americans vis-à-vis the Palestinians that this whole affair should not be treated as an isolated incident. It should be put into the framework of the Arab-Israeli conflict, and once you put it into that context you have to weigh the actions of all parties."

A complicating political factor, as far as the Government is concerned, is the apparent involvement of the American embassy in Cairo in the case.

Last August, Mr Ahmad Essameddin, brother of Mr Mahmoud Noredin, the alleged leader of the Egypt's Revolution group, is



Khaled Abdel Nasser

widely reported to have contacted the US mission with details of the group's activities.

While the circumstances of Mr Essameddin's defection are murky - he is said to have feared for his life after a family row - there seems little doubt that information he provided to the US embassy helped in the arrest of the alleged ringleaders of the Egypt's Revolution.

Opposition figures, including prominent lawyers, have seized on the apparent US involvement in the case (Mr Essameddin, who is a principal defendant, reportedly sought refuge in the embassy compound) to argue that this represented a violation of Egypt's sovereignty and that Mr Essameddin's testimony should be disallowed. The American connection is a political embarrassment to the Government.

Egypt's Revolution, whose literature indicates it is a neo-Nasserite group committed to the abrogation of the peace treaty with Israel, has claimed responsibility for the murder of Israeli officials in Cairo - in August 1985 and March 1986 - and for the wounding of two US embassy staff, including the head of security, as they drove to work last May.

Among 20 defendants in the case, including Mr Khaled Nasser who has taken refuge in Yugoslavia, are Mr Gamal Shawk Abdel Nasser, nephew of the late President, who also fled into exile, and Mr Sharif Hussein el Shafai, son of Mr Hussein el Shafai, a former vice-president and a member of the group of army officers who carried out Egypt's 1952 revolution led by Mr Gamal Abdel Nasser.

Mr Khaled Nasser, a 38-year-old engineer who fled first to London last September and then to Belgrade, claiming his life was in danger from the Israeli Mossad, has helped to keep the political pot boiling in Egypt by issuing a

series of statements, appearing to defend the activities of Egypt's Revolution.

Dr Ibrahim, explaining evidence of public support for Mr Khaled Nasser, said it was "an occasion for the pouring out of public sympathy for the memory of Nasser who still remained tremendously popular with the middle and lower classes."

The issue had also arisen at a time of frustration in the community over rising prices and food shortages.

Dr Ismail Sabri Abdallah, a member of the central committee of the left-wing Nigam party, said that from the standpoint of the "simple Egyptian in the street, to kill an Israeli is not a crime."

He said, however, that the left should approach the case cautiously "because you cannot play the domestic game two ways. We want the rule of law and independence of the courts. We can't say that for political reasons the courts can't judge."

There is little doubt the Nasser case has been a filip for the left in Egypt which has been eclipsed recently by the religious right.

A serious worry for the Government is the extent to which the neo-Nasserite Egypt's Revolution enjoys the support of elements of the military. Several army officers are among the accused, and it is possible that a larger number of military figures were involved.

The memory of President Nasser remains strong in a military which has found that since the peace with Israel, its political role has diminished.

It was it underlines the sensitivity of the case in Egyptian politics that Mr Mubarak chose a meeting of senior and middle ranking army officers to make his first public comment on it.

Late in February, soon after charges were laid, he assured the gathering that "this will not affect the name or history of Abdel Nasser."

Mr Mubarak, a former air force commander, owes some of the legitimacy of his own position as a leader of the administration, still dominated to a degree by the military, to President Nasser's legacy.

Egyptian observers are already comparing the forthcoming trial of Mr Khaled Nasser, either in person or in absentia, with the case of Lieutenant Khaled Ismail, the leader of the Islamic Jihad group that assassinated President Anwar Sadat. That, too, in the view of most Egyptians was a political trial.

"It is not," as Dr Saad Ibrahim observed, "an easy situation for the Government, caught between its obligations to observe legality on the one hand and the pressure of public opinion on the other which is sympathetic to the accused."

When the answer is comfort, the clue is six across.

If you're searching for comfort on a transatlantic flight, turn to TWA.

TWA's Ambassador Business Class has just six seats across - to other airlines seven or eight. So you can't get stuck in the middle on our flights, because there are only window or aisle seats. Which means that you can settle back to read, or sleep, in luxury all the way. Fly TWA to the USA and arrive without a cross word!

TWA

LEADING THE WAY TO THE U.S.A.

AMERICAN NEWS

Nicaraguan talks close to deal on ceasefire

By Robert Graham

TALKS between the Nicaraguan Government and the US-backed Contra rebels were yesterday close to a breakthrough in agreeing to a ceasefire in the war that has bitterly divided the country for more than six years.

Both sides were optimistic as they began a third day of talks at Sapoá, near Nicaragua's border with Costa Rica. Earlier, General Humberto Ortega, leading the Sandinista delegation, said he expected "concrete results" to emerge from the discussions.

It is the first time the Sandinistas have talked directly to the Contras on Nicaraguan soil. The talks are being held within the framework of the Central American peace agreement signed last August, and have gone ahead despite a big Sandinista offensive against the Contras which caused serious tension with Honduras and led the US last week to dispatch 3,000 troops there.

Negotiations have now centred on the mechanics of a ceasefire as a prelude to the opening of a broader dialogue with existing legal parties inside Nicaragua. Sandinista officials said much bargaining remained which could lead to a further day of talks. They were anxious to go as far as possible in reaching an agreement during these sessions.

The Sandinistas are proposing a 90-day truce, with a new concession permitting Contras who lay down their weapons to be free of all prosecution and at liberty to be involved in politics. Another concession on the table is a pledge to free one political prisoner for every Contra adhering to the truce. There are 3,000 political prisoners, mostly ex-members of the Somoza regime National Guard.

The Contras are proposing a 45-day ceasefire while a permanent truce is negotiated that would also allow full political freedoms. During the ceasefire the 10,000 strong Contra force inside Nicaragua would be grouped in special zones.

The difficulty for the Sandinistas is that they do not want to be seen negotiating political concessions at this stage. These talks they regard as exclusively military. Discussion of the future role of the Contras and their supporters must take place within the context of a "national dialogue" with all the other political parties, they insist.

James Buchan in New York and Nick Bunker in London on lawsuits brought against leading insurers

US states allege insurance conspiracy at the Garrick

THE GARRICK Club, a gloomy Italianate building in London's Covent Garden, is a good place for conspirators. According to court papers filed in San Francisco on Tuesday, conspiracy was on the minds of a group of leading insurance men from the US and the London market who met at the club for dinner on July 4, 1984.

At the dinner, according to lawsuits filed by eight US states on Tuesday, were representatives of the US industry and the leading Lloyd's underwriters of US casualty reinsurance, led by Mr Robin Jackson and Mr Richard Hazell. The lawsuit says that the Lloyd's men were "almost militant" in saying that they would no longer bear losses by laying off in London a type of US insurance known as comprehensive general liability (CGL).

This is the type of insurance bought by businesses, states and municipalities to protect themselves from their liability for injury or damage from products or at schools, day-care centres,

tramways or waste dumps. In a period of heavy expansion from the mid-1970s, the industry had competed vigorously to write these policies.

But the risks of the cover are hard to quantify because damages can take years to appear. By 1984, the industry faced big losses from "long-tail claims" on policies written years before.

In insurers' eyes, the 1980s had shown a dangerous escalation of a trend towards inflation in damages awarded by American judges, and a tendency for judges to interpret ever more broadly definitions of an insurers' liability.

There were other looming threats. First, damages claims by asbestos victims against US corporations were mounting. Second, in 1980 the US had passed the so-called Superfund law, which made clean-ups of toxic waste dump sites compulsory.

Lloyd's underwriters were appalled when they were sued by Shell Oil for the cost of cleaning up the Rocky Mountain Arsenal, a site in Colorado.

Third, the apparent explosion of long-tail claims coincided with falling interest rates, which cut back on insurers' investment income, and a price war. In 1984, the US industry plunged to a \$3.8m operating loss. The next year the loss was \$6.4m.

So - according to lawsuits filed on Tuesday by eight US states - the Garrick Club meeting was one of many secret consultations behind a vast transatlantic conspiracy to restrict liability coverage. The suits allege that four leading US insurers - Astor, Cigna, Allstate, Hartford Fire - conspired with US reinsurers and the leading Lloyd's North American non-marine underwriters to force the whole industry to reduce cover and drive up premiums in the so-called "liability crisis" of 1984-85, when the availability of liability insurance dwindled severely.

The states have been bitter about the crisis ever since. One factor which in the past appeared to limit their scope for action is



Clements: "one-way street in favour of insurance companies."

that the US insurance industry has a partial exemption from federal antitrust laws. The argument is that insurers need to pool some information to enable them to price their policies properly.

But the suits say the industry engaged in "boycott, coercion and intimidation" - which are not granted immunity from anti-

trust laws. The suits will ask the court to force the industry to restore cover and provide money damages to compensate state agencies and fund a trust to cover claims that arise from risks uninsured during the crisis.

According to the New York State suit, the Garrick Club meeting was followed, on September 1984, by another club dinner, in New York. The host was the Insurance Services Office, which writes standard policy forms for use by the primary insurers. The guests were the Lloyd's men and the big US reinsurers. The reinsurers told their host that they would withhold reinsurance for commercial general liability unless the ISO changed its forms to restrict the insurers' exposure.

The key change, which was adopted by ISO next day, restricted liability cover only to damage that occurred during the life of a policy - so-called "claims-made" cover. The new forms excluded all pollution coverage. Lloyd's underwriters held a meeting in London which

agreed to boycott one of the most unpredictable risks - pollution cover. An agreement, with 40 signatures, is in the court papers.

But the claims-made policy was surrounded by an element of controversy, and encountered strong buyer resistance, because it appeared to deprive the policyholder of certainty of insurance coverage. Mr Bob Clements, president of Marsh & McLennan, the biggest US insurance broker, has called it "a one-way street running in favour of the insurance companies."

All four US companies, the ISO and yesterday the Lloyd's underwriters say they have no case to answer.

Mr Stephen Marrett, a leading Lloyd's underwriter, said: "We are confident that there is no substance in any of their charges," he said.

Mr David Seifer, a First Boston insurance analyst, commented: "It's going to be a hard case to prove. Insurance companies are lemmings, they're not colluders."

Congress delay on Gephardt amendment

By Nancy Dunne

CONGRESSMEN working on the US Omnibus Trade Bill have delayed consideration of the controversial Gephardt trade practices amendment until after the Michigan caucus on Saturday.

The House of Representatives is sticking to its line, unacceptable to the Administration, which would transfer authority for determining trade violations and taking action on them from the President to his Trade Representative.

Further, the House is insisting on adding to the list of nations unfair trade practices, the following: expert targeting, a "persistent pattern of conduct" which denies workers rights, and restrictions on market access.

Discussions between the House and Senate are expected to lead to rejection of the Gephardt amendment. This authorises US trade barriers against any country showing persistent trade surpluses and found guilty of unfair trade practices.

Dukakis comes out for tough trade laws

BY LIONEL BARBER IN WASHINGTON

GOVERNOR Michael Dukakis of Massachusetts, the front-runner for the Democratic presidential nomination, has shifted his campaign in favour of tough new trade legislation.

The shift appears aimed at delivering a knock-out blow to Congressman Richard Gephardt of Missouri, the economic nationalist whose future as a Democratic candidate rests on the Michigan caucus results this Saturday.

But it has brought charges of "flip-flopping" because Governor Dukakis has spent much of his campaign boasting his free-trade credentials and attacking Mr Gephardt for backing a protectionist trade policy.

Mr Dukakis has also said publicly that the President has all the power he needs to combat unfair trading practices, and therefore does not need extra authority as provided by the Omnibus Trade Bill.

On entering Michigan, where trade and jobs are key issues in a state dominated by the steel and US car industry, Mr Dukakis began to back-pedal.

This week, he endorsed legislation backed by the local Democrat and US Senator, Mr Don Riegle. In turn, Senator Riegle endorsed Governor Dukakis.

The cash-rich Dukakis campaign needs a win in Michigan to compete for a poor third performance in the last Democratic primary election in Illinois, likewise a northern industrial state. He is currently leading in the polls, just ahead of the Rev Jesse Jackson and with a big lead over the cash-starved Mr Gephardt, and fellow rivals Senator Albert Gore of Tennessee and Senator Paul Simon of Illinois.

Governor Dukakis was expected yesterday to pick up a big-name endorsement in the shape of Senator Bill Bradley of New Jersey, often mentioned as a dark horse nominee in the event of a deadlocked Democratic national convention. The Bradley endorsement should help him in, delegate-rich New Jersey primary on June 7 which along with California are the last big events before the convention in Atlanta in July.

Revised estimates show faster US growth

By Anthony Harris in Washington

THE US economy grew even faster in the final quarter of 1987 than previous estimates suggested, according to the latest revision of the figures by the US Department of Commerce. The new estimate is that gross national product grew at an annual rate of 4.8 per cent, compared with 4.2 per cent in the first estimate, and 4.5 per cent in the first revision.

The figures still show that stockbuilding was by far the strongest component of final demand, accounting for more than three quarters of the total, though the estimate for the rise in non-farm inventories has been revised downwards slightly. When this figure was first announced, it led to widespread forecasts of a sharp slowdown in the economy, but subsequent evidence has shown that this was probably misleading.

The main significant change in the new estimates is an upward revision of consumer spending, though this is still shown as sharply down from the third-quarter peak, just before the October stock market crash.

Meanwhile, the new figures for consumer prices, also published yesterday, maintain the subdued inflation trend of recent months. Prices rose 0.2 per cent in February.

UN vote again attacks move to shut PLO office

By Our UN Correspondent

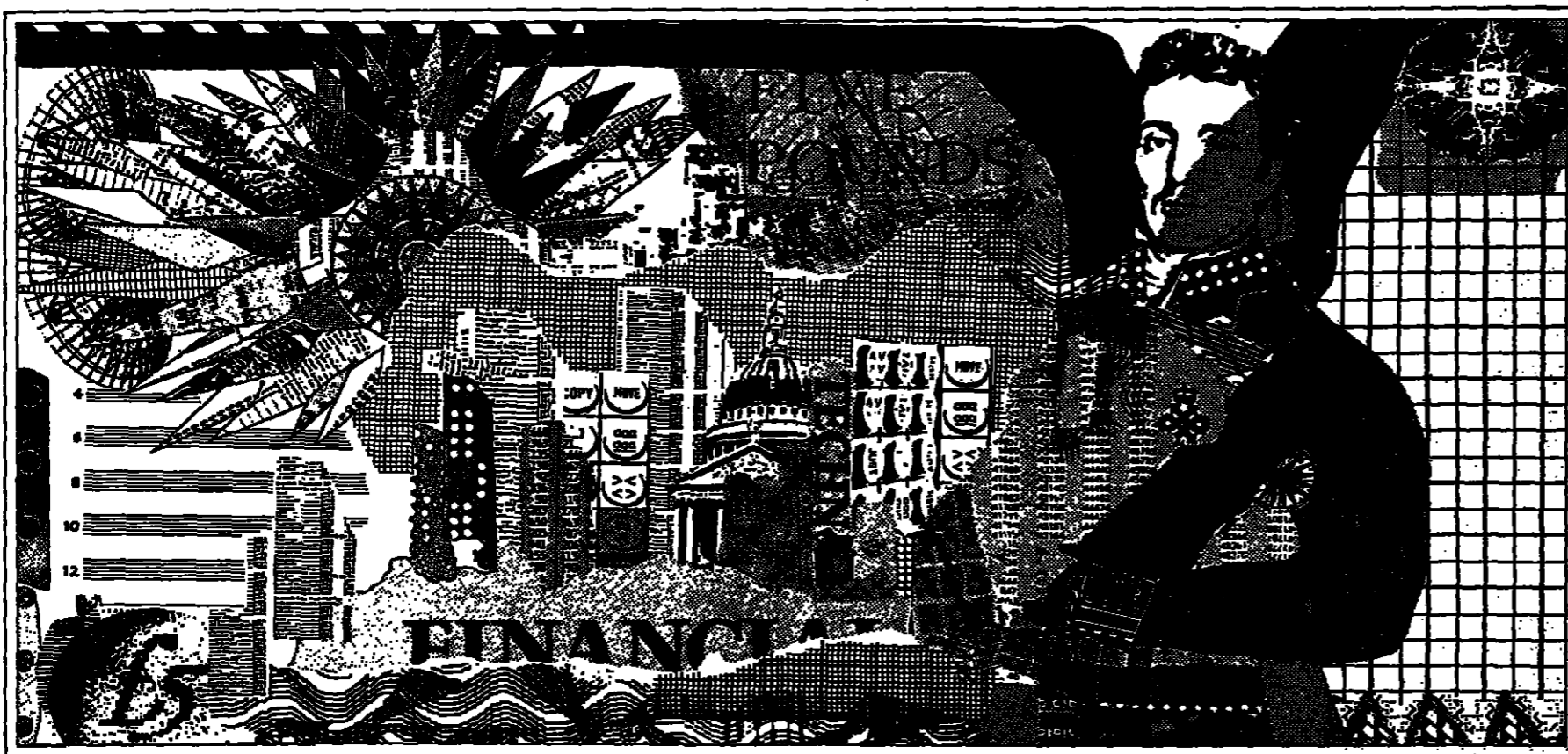
The United Nations General Assembly yesterday again attacked the US decision to close the Palestine Liberation Organisation's mission.

With only the US and Israel opposing, the General Assembly deplored the failure of the US as host country to comply with its obligations under the 1947 agreement that established the UN's headquarters in New York.

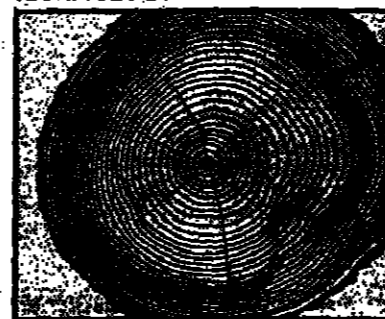
Mr Herbert Okun for the US said the Administration had objected to the congressional law that ordered the closing of the mission. A Federal court is to decide the case.

Business law, Page 20

Norsk Data didn't buy Wordplex for nothing.



EUROPE'S FASTEST-GROWING TECHNOLOGY.



We're not actually talking about money.

(Though, with a turnover approaching £300 million, it's something we certainly aren't short of.)

What we're talking about is the uniquely logical link between the dozen of text processing, and our own Information Technology.

To amplify that statement - and because you may know less about Norsk Data than about its new acquisition - here is a brief history lesson.

Norsk Data was founded in 1967 and has grown to become Europe's largest manufacturer of super-minicomputer systems.

We place a strong emphasis on Fourth Generation total solutions for (amongst others) Local and Central Government, Manufacturing, Financial Services and Commerce.

Since 1980, we have been firmly committed to the UK. Apart from our headquarters near Newbury, we have six regional offices - and over 2000 UK customers that range from ICI and Natwest to the DHSS and the CEBG.

Technology apart, one of the main reasons for our success is that we're the only European IT company to supply and accept total responsibility for every aspect of hardware, software and support.

In 1987, we realised the extent to which Wordplex could complement our technology, our production resources and, above all, our human resources.

And that brings us up to date.

A Marriage of more than Convenience.

Imagine what would happen, if you combined Norsk Data's solutions with Wordplex text processing...

Precisely: an integrated office system, in which every aspect of information can be converted into the finest of hard copy - whether in the form of text, publications, graphics, spreadsheets, electronic mail, orders, invoices, or sales letters.

It's an exciting proposition, isn't it? And because we had begun to apply Norsk Data solutions to Wordplex 90 and 8000 systems long before we actually bought the entire company, it's already up and running.

If you'd like to know more about the unique advantages of Norsk Data + Wordplex, or indeed, about any other example of Norsk Data technology, just mail the coupon - or ring Jane Padgett on 0635 35544.

In the meantime, we'll leave you with this thought:

While perfect marriages may be made in heaven, true compatibility usually begins at Benham Valence, Newbury, Berks.



THE POWER BEHIND THE SCREEN.

To find out more about Norsk Data, return this coupon to Norsk Data, Benham Valence, Newbury, Berks RG16 8UJ.

Name:

Position:

Organisation:

Address:

Telephone:

WORLD TRADE NEWS

EC threatens to impose levies on underpriced ships

BY WILLIAM DAWKINS IN BRUSSELS

THE European Commission yesterday threatened to demand the imposition of punitive port levies on unfairly underpriced Japanese and South Korean vessels visiting the Community, unless the two countries strike an accord with the EC on fair competition in shipbuilding.

The move follows EC shipbuilders' demands for protection against price-cutting by Far Eastern shipyards, mainly in South Korea, where ships have been sold for less than the cost of production.

It will be welcomed by European shipbuilders as a sign that the Community is prepared to keep alive at least some of the industry and its 33,000 jobs.

Brussels trade experts are to start talks with their Japanese and South Korean counterparts shortly, Mr Willy de Clercq, European Commissioner for External Trade, is to produce details of how the levies would work by the end of June. If the discussions appear to be making no progress, he will ask member states' consent to put the fines into effect.

The fines would apply to "abnormally priced" vessels built in Japan or South Korea, irrespective of registration.

They would only apply to ships ordered after January 1, 1989, and would be payable whenever vessels load or unload at EC ports.

Brussels hopes the talks will result in ways to "stabilise the market", including setting prices at profitable levels, reducing huge disparities in state aid, and "equitable" capacity reductions.

Yesterday's move is a recognition that EC rules allowing its shipbuilders a limited amount of state aid - 25 per cent - are failing to bridge the gap in costs between Community yards and their Far Eastern competitors.

Mr Alain Grill, chairman of CESA, the committee of EC shipbuilders' associations, said: "This encouraging initiative is a further important signal to our Far Eastern competitors that they cannot solve their problems at the disadvantage of European shipbuilding."

Despite the Japanese industry's problems, Japan and South Korea are the main external factor in EC shipbuilding's decline from just over 26 per cent of the world market in 1975 to around 13 per cent now. The Commission says Japan holds nearly 47 per cent of the world market, and South Korea 17 per cent.

Japanese shipyards reduced capacity from 6m compensated gross tons to less than 4.7m tons last year, and the Japanese Ministry of Transport is predicting another cut this year.

Hyundai wins Canadian ruling on dumping cars

BY DAVID OWEN IN TORONTO

THE Canadian Import Tribunal yesterday ruled that the dumping of Hyundai cars on the Canadian market has not materially injured the domestic car industry.

The decision, which followed a dumping complaint against the South Korean car maker by the Canadian subsidiaries of General Motors and Ford, deals a severe blow to Detroit's attempts to control the growth of imports in the North American car market.

GM and Ford were widely believed to be treating the current complaint as a test case before launching similar challenges to importers to the US

£193m credit deal for Armenian factory

By Peter Montagnon, World Trade Editor

MORGAN GRENFELL yesterday signed a £193m export credit package for the Soviet Union to finance the 224th contract won by Simon-Carver last December to establish a plant automation equipment factory at Yerevan in Armenia.

The deal, which comes under the umbrella of last year's Soviet/UK trade finance protocol, is the first sterling buyer credit for the Soviet Union to be signed since 1979, Morgan Grenfell said.

The entire £193m package will be guaranteed by the Export Credits Guarantee Department but, because the contract includes equipment to be supplied by Yugoslavia, ECGD will only provide interest subsidies on £16m of the total.

Morgan Grenfell said it had therefore incorporated into the package a £23m fixed-rate 11½-year sterling loan on which interest subsidies will not apply. The loan started life as a floating rate credit provided by the bank itself which was then swapped into fixed-rate finance in the international capital markets.

Such swap operations are still relatively rare in the export finance market. They are difficult to arrange because of the length of the final maturity as well as the complex drawdown and repayment schedules required by end-borrowers.

Morgan declined to disclose details of this operation, but said the fixed interest rate worked out below the 10.4 per cent maximum currently permitted on long-term sterling export credits.

The interest subsidy on the £193m portion will be struck at 5.5 per cent, which was the maximum permitted at the time the Yerevan contract was signed, though as with other credits under protocol the exporter will have to finance a further subsidy to bring the rate paid by the Soviet side into line with its own requirements.

This portion was syndicated through a group of banks that also includes Moscow Narodny and Bank of Scotland as well as the four UK clearing banks.

Separately, Morgan Grenfell and Midland Bank said they have each signed £50m lines of credit under the Soviet/UK protocol to finance sales of UK capital goods and equipment.

Peter Montagnon on moves towards a common code of checks on export goods

The pitfalls of pre-shipment inspection

FEW ISSUES OF practical trade policy arouse such vehement emotion in exporters as that of pre-shipment inspection or the developing country practice of employing independent companies in the industrial world to check on the price and quality of goods they are buying from foreign suppliers.

Over the past couple of years, first in the US and now increasingly in Europe, businessmen have been complaining bitterly about the way in which the inspection process causes them delay, extra expense and infringes what they see as their right freely to negotiate a price with their customers overseas.

The four main inspection agencies - Societa Generale de Surveilla and Cotena Inspection of Switzerland, Bureau Veritas of France, and Specialist Services International of the UK - have become the bogymen of the export world. Yet at a conference organised by the International Chamber of Commerce (ICC) in Birmingham this week it became clear that mind-altering is finally beginning to give way to serious talk on the inspection industry's future.

Not only have the inspection companies themselves begun to move in the direction of a com-

mon code of practice. Governments, including those of the EC and US, are now taking up the matter in the context of the Uruguay round of multilateral trade negotiations, and the business community itself as represented by the ICC is also working on a code of conduct.

In itself the idea of pre-shipment inspection is not particularly controversial. Most exporters accept the need for some form of inspection to counter malpractices and acknowledge that it sometimes occurs.

For developing countries facing capital flight and an acute shortage of foreign exchange this is a serious problem. Mr J.E.B. Haizel, a Ghanaian trade official, said his experience with imports over the ten years to 1986 had produced evidence of "blatant cheating on the part of both importers and exporters and sometimes collusion between the two."

The real controversy lies, however, in the degree of power wielded by the inspection agencies themselves. Exporters complain that their decisions, partic-

ularly on pricing, often seem arbitrary, that they are taken late in the day when the goods may have already been shipped and that there is no independent right of appeal.

Evidence that this view now finds some sympathy in government circles came from Mr Bruce Butterworth of the US Department of Transportation who said the inspection agencies enjoyed a monopoly position, and that their operations were obscure and not subject to international discipline.

Like the EC, he said, the US now wanted this subject to be covered in the Uruguay round under the rubric of non-tariff barriers to trade. Mr David Love, of the UK Department of Trade and Industry, said such a multilateral route was preferable to national licensing arrangements because it would involve developing countries who employ inspection agencies.

He said he hoped that a comprehensive and binding code of practice would emerge in the General Agreement on Tariffs and Trade (GATT) which would ensure that the criteria used by inspection agencies for checking on shipments were reasonable, relevant and transparent. It should also involve a neutral and

speedy dispute settlement process, he said.

This approach is one that suits the inspection agencies themselves who have banded into a federation to argue their case.

Though West Germany has adopted a licensing system for pre-shipment inspection agencies, the federation opposes formal licensing, according to Mr Robert Wareham who chairs its sub-committee on the issue. "The laws of the various supplying companies differ so much that it is quite unlikely that uniform provisions could be enacted. Some countries may even refuse to legislate in the matter," he said.

Exporters attending the Birmingham conference said that governments now seemed to be much more willing to tackle the problem than they were in the past, but several expressed doubts over the efficacy of the GATT approach.

"My fear with the multilateral code is particularly with the time that it's going to take," said Mr Ian Campbell, Chairman of the British Exporters Association. Some form of licensing at least at EC level was required urgently, he added.

Among the concerns of exporters with the GATT solution is that it still may not be comprehensive

enough. It would leave out exporting countries like Taiwan which is not a member of the GATT and where, according to Mr Campbell, pre-shipment inspection is "a sham and a pretence."

The 26 developing countries who use agencies to monitor their imports also include many who are either not members of the GATT or who do not subscribe to its relevant codes like the Customs Valuation Code. It might therefore prove difficult to enforce a multilateral code, they argue.

Moreover some doubt whether a GATT code could deal effectively with the risk of corruption inherent in any inspection system or with the need to ensure that the agencies themselves are adequately staffed and qualified to perform the work they set out to do.

What is now clear, however, is that the debate is moving forward towards some form of control over an industry that up till now has operated largely under its own rules. The inspection industry is now fully mature, said Mr John Beck of the EC Commission. "It deserves to be regulated like all other industries in a manner that does make it more accountable, more transparent."

NSW government drops plan for Sydney casino

BY CHRIS SHERWELL IN SYDNEY

INTERNATIONAL tenderers bidding to operate the world's largest casino in Sydney have lost out - the newly-elected Liberal and National party coalition government in New South Wales has called the plan off.

The 400-table casino was part of a \$600m (244m) hotel project located in Darling Harbour, an old dockland area near the Sydney harbour bridge which is being re-developed under a project initiated by the now-outdated Labor government.

Both the redevelopment and the casino generated heated controversy, and contributed in a small way to Labor's heavy defeat over the weekend. The casino, in particular, became a source of embarrassment.

Originally supposed to have opened this year to coincide with Australia's bicentennial celebrations, it became the victim of a misadvised tender process which caused protracted delays.

Back in August 1986, the state

government suddenly reversed its decision awarding the contract to a consortium linking Harrah's of the US with a local construction company.

The reversal followed adverse police reports on individuals involved with the consortium, and meat fresh tenders had to be called.

Within months these, too, ran into the ground. Harrah's, now with a new partner, was dropped again, apparently after disagreements over the state's demand for a 30 per cent tax on casino revenues. Labor, committed to building a casino, ordered a third round of bids, but this time separated tenders to operate the casino from those to construct the large hotel which would house it.

This attracted 10 applicants. Most who had previously applied did so again, and they were joined by new ones. All were being scrutinised by the authorities for approval.

Renault chief urges protection

BY KEVIN DONE, MOTOR INDUSTRY CORRESPONDENT

MR RAYMOND LEVY, chairman of Renault, the French state-owned automotive group, issued a strong plea yesterday for far-reaching protection of the European car industry, chiefly against Japanese imports.

He called for the Japanese share of the European car market to be "frozen" at the current level of around 10 per cent.

He said that Renault had "very mixed feelings" about the setting up of Japanese car plants in Europe, and warned that projects such as Nissan's car plant in north-east England or Honda's co-operation with Austin Rover for local production of Honda cars in the UK, would create overcapacity in the European industry.

"If they come to your country with automated plants and lower production costs, their competition will have the same effect as large imports. The Europeans are going to have to close plants and fire people."

Mr Levy warned strongly against the consequences of

creating a single market in the European Community from 1992 without imposing curbs on imports, particularly from Japan and newly-emerging car producers such as South Korea.

"We are going to destroy our own industry," he said. "If we import more we are going to have to close plants in Europe."

Present import quotas could not be removed overnight, he told the French Chamber of Commerce. For the time being the European car industry needed the "shelter of strong protection".

Mr Levy's speech was one of the most strongly-worded calls yet made by a European car industry leader for protection after 1992.

The European car makers association, CCMC, has already demanded that the Japanese share of the European market should not be allowed to increase until European car exports to Japan reach at least half the level of Japanese exports to Europe.

Asked if all producers had backed this move, he said he had

French and Italian support. "I think the British were sincere. I think some Germans were."

Europe could not simply follow the "ideals of free enterprise," he said. First the European car industry had to be rebuilt with standards in productivity, costs and work intensity that could match the Japanese and the South Koreans.

The European Community needed time to build something strong, "to prepare economic war with our competitors." Europe would soon see Japanese cars being exported from the US to Europe.

Mr Levy said European car makers should increase co-operation and collaboration in Europe. "If we remain dispersed with too many companies and too many suppliers, it could end with the loss of the economic war at the end of the period of protection."

"We must make gains in the next 5-6 years to build up our defence so as to be able to fight when the time comes with equal arms."

R-T

PROFIT

R-T

For faster profit, R&T is the key

Rush & Tompkins' remarkable reputation for meeting (and beating) deadlines to strict budgetary and specification demands is the key to your profitability.

Over the years, R & T have evolved a unique style of management that allows for the closest possible working relationships.

By working hand in hand with you right from the pre-planning stage, our contribution to the partnership is maximised - and so is your project's profit potential.

Cost savings can be recognised and

achieved and the construction programme streamlined to give you a bigger and faster return for your money.

This highly effective management system is backed by innovative, state-of-the-art construction techniques and is reinforced by a network of regional offices: you are never remote from the team assigned to your project.

R & T is the key to profitability. So, if you have a project under consideration for the future, you may well find it profitable to talk to us now.

R&T
CONTRACTOR
DEVELOPER

Partners for the future

Head Office: 14 Park Street, London W1Y 4AL. Telephone: (01) 493 4937.

R-T

R-T

UK NEWS

British Telecom sets itself tough service targets

BY DAVID THOMAS

BRITISH TELECOM yesterday released ambitious quality of service targets which it hopes it can apply to most of its customers by the early 1990s.

It also disclosed that it is pressing to be allowed greater freedom to become involved in television programme delivery.

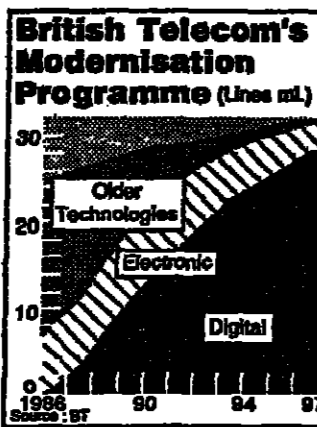
The company, which was widely criticised last year for the quality of its service, yesterday published the standards it expects from the big programme now under way aimed at modernising its network.

Mr John Tippler, director of BT's UK network, said there should be fewer than 0.15 faults a year on a line in a fully modernised network, compared with the 0.3 faults recorded by BT in September.

On a modern network, fewer than 0.5 per cent of calls should fail because of network faults, compared with 4.2 per cent in September.

The average time taken for a call to connect should be one second compared with 12 seconds in September.

BT, which released these figures in a briefing to City analysts, said the rate at which its customers could expect these standards of service would be determined by the speed at which it introduced digital exchanges or modernised its existing TSE4 electronic exchanges.



The company said that by 1993 well over three-quarters of its lines would be connected to these modern exchanges and customers using them could expect the standards of service predicted yesterday.

Dr Alan Rudge, BT's director of research and technology, said the company had told an official committee that optical fibre would be introduced into Britain's local communications network more rapidly if BT were allowed to become more involved in the delivery of television services.

Optical fibre is a modern transmission medium allowing large numbers of voice, data and image signals to be carried along the same cable.

BT close to 90% target for working call boxes

By David Thomas

BRITISH TELECOM is close to achieving its target of having 90 per cent of call boxes working by the end of this month.

The latest monthly survey carried out jointly by the company and the Office of Telecommunications, the industry's regulatory body, showed a sharp improvement in the number of boxes working.

BT and OfTel began publishing monthly surveys in the autumn, following complaints. Of the 7,434 call boxes surveyed between February 6 and March 4, 87.5 per cent were working.

This compares with 77.5 per cent in the previous month's survey. The results of surveys before that varied between 72 and 77 per cent.

The company, which has been devoting more resources to call boxes and reviewing procedures in the service, is confident it will meet the 90 per cent target.

Anthony Moreton writes: A study of telecommunications needs in Wales has been launched by a consortium of counties in the principality acting with the Welsh Development Agency.

More than 1,000 companies are to be surveyed and interviewed in the next three months to assess the extent to which the present services need to be updated.

David Fishlock on moves to decide whether there is any health danger from electricity

Boosting research in a current debate

IS ELECTRICITY bad for your health? There are hundreds of different electrical devices on sale claiming to use electricity and its effects to improve health and treat sickness, yet the electricity supply industry will spend £1m this year investigating possible ill-effects from its power round the home.

It has already spent about £2.5m on such research in the past 10 years, with results which at worst could be called equivocal. It now plans fresh studies using a much-improved method of measuring magnetic and electrical fields.

Electricity and magnetism are inter-related. When a coil of wire is rotated in the magnetic field between the poles of a magnet, electricity flows in it. This electricity sets up an electric field.

Such devices, known as magnetos, mounted in polished mahogany boxes and turned by a handle, were the basis of a popular electrical treatment around the turn of the century.

According to the instructions which came with one made by V. McElroy, electrician, of Manchester, when turned at the speed "most agreeable to the patient," it was good for no fewer than 50 ailments, from weak eyes to debility, want of power, fits and paralysis.

Turned slowly, this magneto produced a pleasing tingle of a few milliamperes of current. Turned faster, the current increased to the "let-go" point of beginning to hurt.

There is stronger evidence that some modern electrical devices can be efficacious. One is the defibrillator, which uses a high-voltage bolt of electricity to kick a fluttering heart back to a steady beat.

AN OFFSHORE wind turbine and three demonstration wind parks, each with 25 turbines, are to be built in a £30m programme to develop alternative sources of power.

The scheme was announced yesterday by Lord Marshall, chairman of the Central Electricity Generating Board.

A 750-kilowatt wind turbine is to be built at sea off the north Norfolk coast in a £2m project sponsored by the CEGB, Department of Energy, Eastern Electricity, turbine manufacturers and the European Community.

The South-west, west Wales and the north-east Pennines will be considered as possible sites for the three wind parks, which could provide enough electricity for 15,000 people. The £20m programme is to be jointly funded by the Department of Energy and the CEGB.

Lord Marshall told a British Wind Energy Association conference that if all went well it was planned to scale up to parks with several hundred turbines.

The Government and the CEGB hope that

those who live near high-voltage cables often find them intrusive and know they give off sinister sounds on a damp day. They may even experience "micro-shocks" which, although no more harmful than static electricity from a nylon carpet, can be worrisome if often repeated.

But the electricity industry can find no evidence that the high-voltage cables can cause any harm. Of necessity, people must be kept well out of range of any emanations they may produce.

Central Electricity Generating Board scientists developed a walking stick with a built-in meter and "walked the lines" to assure themselves that at ground level there was nothing detectable.

The present scientific interest focuses much nearer home - on the fields set up by cables round the houses, by appliances in the kitchen and bedroom and in workplaces. The voltages here are only a few hundred volts. As Dr Robin Cox, chief medical officer of the CEGB, says: "We really have got to find out what our exposure is to magnetic fields in our everyday lives."

This is because of some findings in the US of an association between overhead but low-voltage cables of the kind which festoon the area round many American homes, and leukaemia in children.

The association is very weak, not statistically significant because numbers are too few but "suggestive," Dr Cox says.

Moreover there are serious problems in measuring the emanations, so these have merely

been inferred from the arrangement of cables. Those who did the research on behalf of the New York Health Department admit their experimental controls were necessarily poor.

If an unequivocal association were to be established between domestic electricity and cancer it would have serious implications for electrical engineering as we know it today, acknowledges Dr Peter Chester, CEGB environment director.

British power distribution practice differs from the US, with UK cables buried in ways which tend to self-cancel their fields, but the industry wants to learn more about any biological effects.

The opportunity arose recently when Dr Chester's staff found a Canadian electricity company had micro-miniaturised a meter for electrical and magnetic fields, shrinking it small enough to be worn conveniently as a personal monitor. It records data for up to two weeks.

The wearers will mainly be electricity industry staff initially; secretaries and managers as well as electrical workers. In addition, the CEGB has developed a vehicle which, like the television detector vans, will be able to measure fields around homes and even inside specific rooms.

University medical statisticians will draw up questionnaires for personal details of health and wellbeing from those wearing the monitors. This time they will have the chance to correlate people's own observations with precise measurements of the emanations to which they have been exposed.

MANUFACTURERS HANOVER

Vitality

"...We look for stronger operating earnings in 1988 based on three fundamentals—further success in managing our businesses for higher returns, lower operating expenses and a continued improvement in credit quality..."

Extracted from a letter to shareholders by the Chairman, John F. McGillicuddy.

"...Restoring common shareholders' equity to four percent, the ratio prior to the reserving action, is our overriding priority. We intend largely to accomplish this objective by the end of 1988 through a combination of gains from the sale of undervalued assets, the realization of tax benefits resulting from the addition to the reserve, and stronger operating earnings..."

Asset Sales

"During 1987, as part of the equity restoration process, we realized \$150 million pre-tax from the sale of undervalued assets... We continue to have substantial amounts of undervalued assets on our books. By selling a portion of them, we anticipate pre-tax gains in 1988 of \$400 million—\$230 million after-tax, but before tax benefits relating to the reserve decision."

Tax Benefits

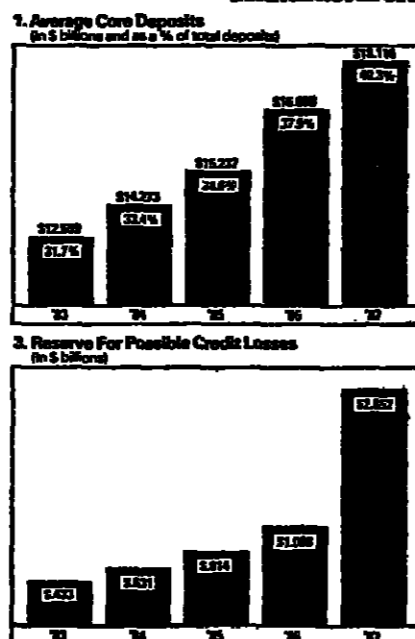
"In 1987, the full impact of the reserving action was mitigated by the ability to apply \$277 million in tax benefits. In 1988, we will have the capacity arising from operating earnings and gains from asset sales to apply approximately \$200 million of the remaining \$342 million of tax benefits relating to the reserve action."

Operating Earnings

"While tax benefits and special gains will be essential to rebuilding equity in 1988, it is the renewed strength of our basic businesses that will make the major difference this year and in the years ahead."

"We look for stronger operating earnings in 1988 based on three fundamentals—further success in managing our businesses for higher returns, lower operating expenses and a continued improvement in credit quality as was evident in the fourth quarter of 1987."

"Manufacturers Hanover has strong



franchises in place within profitable segments of three key markets.

"Also in place is an effective profitability discipline to make these businesses pay off in higher returns. It proceeds from the logic that managing for higher returns dictates that we exit, sell or downsize businesses that no longer meet our targets while directing additional resources to the most profitable segments of our markets. The objective is clear—to enhance shareholder value..."

"Managing for higher returns formed the basis of the restructuring and other special charges we took in the fourth quarter

amounting to \$117 million. This primarily related to the exiting of businesses, a further sharpening of focus in selected markets, the closing of domestic offices and a planned staff reduction of approximately 2,500. With this reduction, total staff will have been scaled down by approximately 5,400 positions, or 17 percent, since the beginning of 1986."

"The restructuring portion of the fourth quarter charges amounted to \$82 million, but will result in an earnings benefit going forward of approximately \$96 million a year..."

"Improved results were largely masked in 1987 by the reserving action in June and the fourth quarter restructuring charge. Progress was broadly based. For example, trading revenues increased 47 percent to \$161 million. Earnings from consumer banking increased 23 percent to \$116 million. Net income for the Corporate Banking Sector totaled \$166 million, up from \$40 million in 1986."

"Also masked was our institution's continued success in controlling overhead. Without the restructuring and other special charges, operating expenses would have been up only 3.3 percent for the year—among the best performances for a money center bank. Expense control remains an imperative. We expect operating expenses in 1988 to be lower than last year's level."

"In summary, with a number of major restructuring behind us, the real value of our business franchises will begin to be reflected in stronger operating earnings..."

Liverpool gains £16m bonus from debt shift

BY IAN HAMILTON FAZEY, NORTHERN CORRESPONDENT

LIVERPOOL has balanced its authorities doing their own budget, cut its rates and the increased social service spending for 1988-89 by more than £100m, as well as shifting short-term liabilities to the bodies which are responsible for them.

This in turn reduced pressure on Liverpool to meet interest payments, thus creating a breathing space which helped the city avoid running out of money.

No money changed hands during this complicated financial juggling act, but Labour leaders discovered last month that under government rules the debt transfer counted as a capital receipt which means Liverpool can spend all of the £13m it expects from capital receipts this year instead of the £7m (30%) the Government originally assumed. It will all go on housing repairs, which are being "capitalised" — switched from the revenue budget that is met from the rates.

The council is making savings of £4m so that, in spite of spending £350,000 more on social services, £500,000 on countering hardship among the worst-off schoolchildren, £40,000 on increasing the council's Youth Training Scheme intake, £70,000 on support for child care and £20,000 to the Biscuits Arts, it is still able to cut rates by 0.5p in the pound. This is the first reduction in more than ten years.

At the same time land and asset sales of £17m are in the pipeline. The effect of the regional

Courtaulds to add 130 jobs in Ulster clothes plants

BY ALICE RAWSTHORN

MORE THAN 130 jobs will be created in Northern Ireland as a result of a £5m investment by Courtaulds, the textile and chemicals group, in its clothing factories.

Deirdre Foundation Wear, a subsidiary of Courtaulds, is supplying lingerie to the Marks and Spencer retail group, operates from three factories in Northern Ireland with a workforce of 615 people.

It plans to buy the factory it uses in Limavady, County Londonderry from the Industrial Development Board for Northern Ireland and create 80 jobs at the plant. Deirdre is also extending its factory in Fimbridge, County Tyrone creating 50 jobs.

The company has secured the

IDB's support to introduce computerised production and to undertake a research programme to assess its future technological needs.

Courtaulds also manufactures knitwear and jersey fabric in Northern Ireland.

The Courtaulds investment is the latest in a series of expansion schemes to be announced in the Northern Ireland textile industry. Last autumn Coats Viyella unveiled a £5m scheme for one of its spinning companies, Lisnara, to expand production of industrial wipers, creating 110 jobs. At present, 80 people work at the plant.

At nearby Decade, Kimberly-Clark is expanding its Sealand mill with a £2m investment to boost production of hygiene products that will add 80 jobs to the present workforce of 50.

The company said yesterday that the Welsh investment was to meet increased demand. Most of the higher output of hygiene products will be exported, largely to France. The industrial products are destined for the home market.

Jobs boost for N Wales

BY ANTHONY MORETON, WELSH CORRESPONDENT

KIMBERLY-CLARK is to spend £2m at its two plants in North Wales to expand production of women's hygiene products and industrial wipers. Yesterday's decision will lead to 150 people being added to the present workforce of 170.

The company also gave a clear hint that further spending in the area was highly likely.

The news, which will help consolidate the strong growth being experienced in this part of north-east Wales, came just two days after it was announced that Race Electronics is to expand its plant outside Cardiff taking 1,100 workers over the next four years.

Kimberly-Clark, best known for

its Kleenex tissues and Tampax hygiene products, is to spend £15m on a mill at the Delyn enterprise zone in Flint to expand production of industrial wipers, creating 110 jobs. At present, 80 people work at the plant.

At nearby Decade, Kimberly-Clark is expanding its Sealand mill with a £2m investment to boost production of hygiene products that will add 80 jobs to the present workforce of 50.

The company said yesterday that the Welsh investment was to meet increased demand. Most of the higher output of hygiene products will be exported, largely to France. The industrial products are destined for the home market.

UK NEWS

RUC insists on presence at funerals

THE Royal Ulster Constabulary yesterday signalled the end of its low-key approach to the policing of paramilitary funerals in Northern Ireland, following five murders at recent funeral ceremonies in the province writes Michael Cassell in London.

The policy change was announced as the bodies of the two British soldiers killed in Belfast last weekend arrived back in the British mainland (pictured right) where they were met by their families and by Mrs Margaret Thatcher, the Prime Minister.

It was also confirmed yesterday that the special meeting of British and Irish ministers under the Anglo-Irish agreement will take place tomorrow in London. The meeting is being seen as a critical step in efforts to raise the level of cross-border co-operation.

Last night, after another round of talks between the RUC and the television companies, the RUC accepted legal advice and agreed to hand over 49 seconds of unbroadcast film which the police believe could help in their hunt for those involved in the attack on the two soldiers.

It is understood that the UK Government is considering extending to Northern Ireland the provisions contained within the Criminal Evidence Act which would oblige the broadcasting authorities to hand over material demanded by the police.

Yesterday's RUC statement clearly indicated that the RUC intends to resume its previously controversial policy of assuming full and total control over IRA funerals. The decision, under-



stood to have been personally endorsed by Sir John Hermon, the RUC chief constable, follows growing political pressure for the police to reverse their recent stand-off approach at paramilitary funerals.

The RUC statement said the police would not tolerate future breaches of the law or the usurping of their role. It said that the police had made every reasonable attempt to avoid conflict and confrontation.

It continued: "Regrettably, experience has shown that the influence of clerics and others in the community, however well

intentioned, is not enough to curb the behaviour of paramilitary organisations."

The RUC stressed that continued co-operation with the Garda, the Irish police force, was essential to counter a terrorist threat, which it said remained great.

Cross-border security will top the agenda for tomorrow's talks in London, which will be attended by Mr Tom King, the Northern Ireland Secretary, and Mr Brian Leavelle, the Irish Foreign Minister. Police chiefs from both sides of the border will also be present. There may also be an examination of continuing politi-

cal difficulties between the two governments, including differences over Britain's "no prosecutions" approach to an alleged RUC shoot-to-kill policy and to the extradition of terrorist suspects from the Republic to the UK.

There is some pressure for a meeting between Mrs Thatcher and Mr Charles Haughey, the Irish Prime Minister. But it is thought more likely that the two leaders will meet in the autumn, before a review of the Anglo-Irish agreement, which reaches the end of its initial three-year period in November.

Parnes volunteers his return to the UK

BY CLIVE WOLMAN IN LONDON AND LOUISE KEMO IN LOS ANGELES

LAWYERS representing the UK Government and Mr Anthony Parnes, the former stockbroker at the centre of the Guinness affair, last night hammered out an agreement which means the abandonment of the hearing against Mr Parnes in California, scheduled to start today.

Mr Parnes signed an affidavit at the Santa Ana courthouse, where the extradition hearing was to have been held, by which he agreed to return voluntarily to the UK.

It is not yet clear whether the agreement means a dropping of some or all of the 18 charges against Mr Parnes by the UK authorities.

On Tuesday, Mr Parnes' lawyers denied any suggestion of a deal by which Mr Parnes

would be granted legal immunity in return for giving evidence against the other key figures facing charges arising from their alleged involvement in the Guinness takeover battle for Distillers two years ago.

However, it is possible that some of the more serious charges, in particular those of theft, may be dropped leaving only the more technical charges arising mainly from the Companies Act outstanding against Mr Parnes.

The theft charges are the only ones on which Mr Parnes can be extradited from the US. Mr Parnes' resistance to the moves to extradite him is thought to have been weakened after spending six months in prison awaiting the

extradition hearing.

All attempts to allow him to be released on bail have been rejected by the US courts.

Mr Parnes faced the possibility of several more months, if not longer, in prison, before the extradition and appeal procedures were exhausted.

Mr Parnes was arrested when he arrived in Los Angeles from Paris on September 30 by FBI agents acting on a warrant obtained in London alleging four offences of false accounting involving \$2.4m.

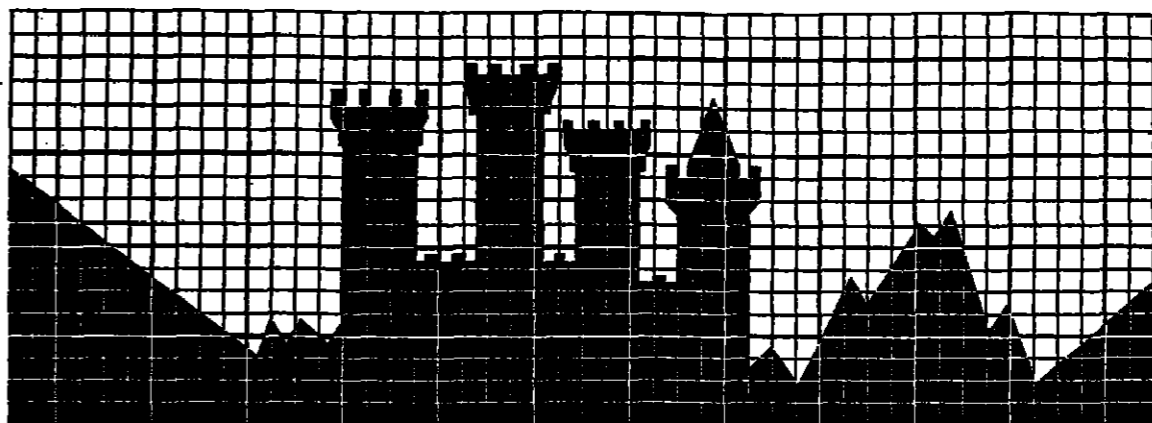
However, a Los Angeles court was told on October 29 that he was to be charged with a total of 18 offences, all relating to the Guinness affair, including the theft of \$2.4m. Mr Parnes' hearing was

postponed for two days this week, apparently to allow a deal to be finalised.

Despite the closeness of an agreement which would end the extradition proceedings, the office of Sir Patrick Mayhew, QC, the Attorney-General, yesterday sent a letter to the editors of eight national newspapers and the Press Association, the national news agency. The letter suggested that reporting of any such hearing would have to exclude any details of the evidence or the argument.

The letter said that the Los Angeles proceedings were analogous to committal or other preliminary court hearings in British courts at which reporting restrictions are imposed.

G T B O N D F U N D S

Four Bond Funds from GT.
(Security for your money in today's markets.)

At a time of volatile stock markets, leading investment advisers are reaffirming the attraction of bonds as a defensive alternative to investment in equities.

In response to this, GT have launched three new bond funds to add to the existing GT Bond Fund. Together they provide the investor with a broad range of funds which offer a good income, as well as prospects of capital appreciation and greater capital security.

GT's Range of Bond Funds

GT Bond Fund - International fund priced in US Dollars.

GT Select International Bond - International fund priced in Sterling.

GT Select Dollar Bond - US Bonds.

GT Select Gilt - UK Government Bonds.

These Bond Funds invest only in government bonds or sovereign bonds, thereby ensuring that the investments are of the highest credit quality and marketability.

GT are experts in the field of international investment, managing over US \$6 billion (£10.11.87) on behalf of pension funds, pooled funds, institutional clients and private clients worldwide. Their economic research and currency management teams are able to seek out the best combination

of investment and currency with the aim of preserving capital and providing a rising total return.

For 1988 and again for 1987 GT Management PLC has been voted among the top three fixed interest investment managers in the world, by Investment International magazine.

Daily Dealing

All GT's Bond Funds can be bought or sold daily at known prices and payment may be made either in sterling or US dollars.

If you would like more information about GT's range of Bond Funds please fill in and return the coupon.

To: Julie Falteise, GT Management (Guernsey) Limited, PO Box 388, St. Peter Port, Guernsey, Channel Islands. Please send me details of the GT Bond Funds.

Name _____

Address _____

FREE - News on money
if you're living abroad.

There's a brand new magazine that's worth its weight in gold.

All about money - and how to make the most of it when you live and work abroad. Make more - save more - invest more - keep more!

It's full of good ideas about cutting tax - boosting investments - keeping ahead of the game.

It's called The International. And the best news of all is - it's free. That's right, it won't cost you a penny: we'll deliver it to you direct every month.

And if that sounds unusual, how about this...

The International is written and produced by an expert team at Financial Times Magazines. These are financial

writers at the very highest level - they know their stuff and they specialise in all the subjects that interest you: paying less tax, making more money, offshore investments, property.

When you live or work abroad, there are lots of opportunities for you and your money. But there are lots of pitfalls too!

Our expert team will keep you right! Steer clear of the sharks - their risky schemes and iffy ventures. This new magazine is dedicated to giving you advice you can be sure of, and insight you can trust. We know where to dig to get the answers you want.

And we know how to keep it simple: you don't have to be a financial wizard to understand

us. We talk straight, no frills.

We'll give you sound advice plus some new ideas you may not have thought of. With our backing, you can use them with confidence!

The International Free
You can have your own copy of the magazine every month by putting your name and address on the coupon below and sending it off now. That's right, you'll be among the first to keep the secrets of the very best financial writers. The International is a free magazine for people living abroad. Questions and Answers - your queries on investment and finance - resolved quickly and easily. Statistics - up-to-date and reliable. Expert advice on all aspects of money and finance.

Please send me my copy of The International every month. I understand it's FREE. BLOCK CAPITALS PLEASE

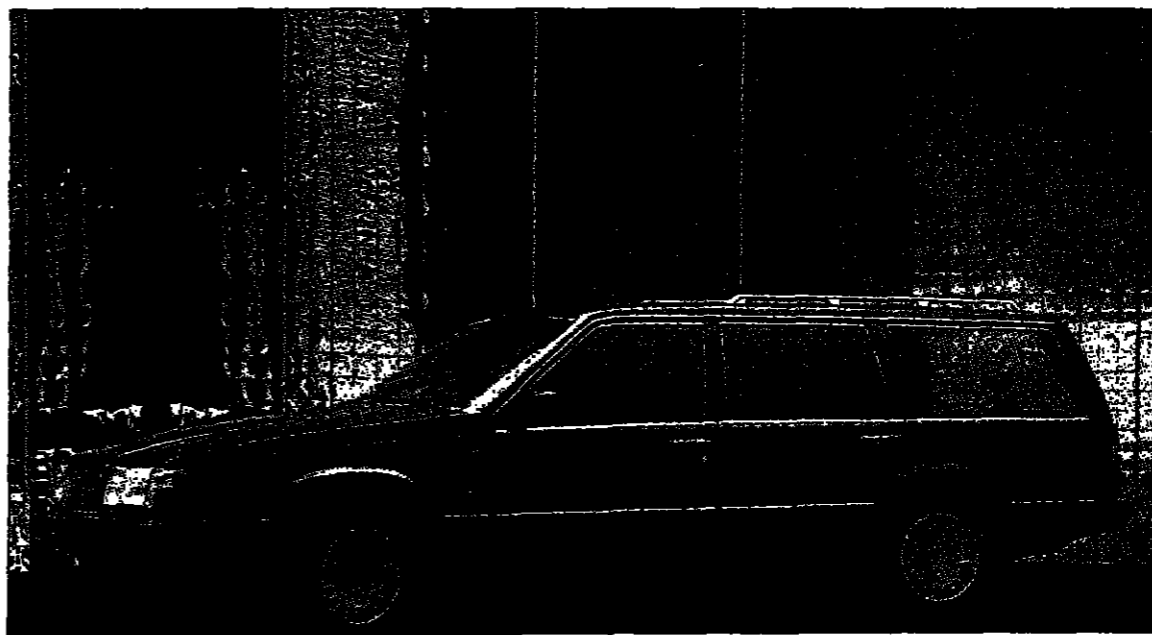
Name _____

Address _____

THE International
Please return to Marketing Department, FT Magazines, Greystoke Place, Fetter Lane, London EC4A 1ND, England.



Great Cars don't change.



So what's that new, smooth front doing on the new Volvo 760? Why has everything around the driver been changed? Why introduce the Volvo Advantage Programme, including 24 Hour Roadside Assistance and everything else you didn't expect to come with your new car? And why offer a special Volvo Insurance Programme? What is the excuse for all these new features? Well, try to think of cars as people. Some of them actually mature. Have you?

VOLVO

Standard equipment, Volvo 760 GLE: ABS brakes, Electronic Climate Control, power assisted steering, electrically operated sunroof, electric window lifts, automatic level control, automatic four-speed gearbox as well as a number of other items others offer as options. Instrumentation: The 1988 model has new instrumentation, totally different from your old Volvo 760. Engine: All-aluminum V6; microprocessor-controlled fuel injection and ignition. 170 hp DIN. In certain markets the Volvo 760 is available with a 4-cylinder, turbo-charged engine with intercooler (182 hp DIN) and/or 5-cylinder, turbo-charged diesel engine with intercooler (122 hp DIN). Chassis: Spring strut front suspension, Volvo Constant Track suspension with vibration-absorbing subframe. Safety: The Volvo 760 GLE is a Volvo. Manufacture: The Volvo 760 GLE is exclusively built at our factory in Kalmar, Sweden. The car plant without assembly lines. Plus: The unique Volvo Advantage Programme, including 24 Hour Roadside Assistance (recovery and repair service, hotel expenses, car replacement and much more than you probably won't need), Volvo Guide Europe (your complete road atlas and travel guide) as well as being offered a Replacement Car while your car is being serviced. And why not apply for a Volvo Driver's Club Card? The Volvo Advantage Programme may vary from country to country. Stated engine output refers to engines without catalytic converters. Equipment may vary in some markets.

Your Best Opportunity To Do Business Directly With Guangzhou, China

The city of Guangzhou is the political, economic and cultural centre of Guangdong Province, China. It is also the most important port in the southern part of China.

This is the first time ever for Guangzhou to participate in the Lyon Fair. The Chinese Hall of the 70th Lyon Fair in France (sponsored by Guangzhou) will have more than 1,000 varieties of products on display. They include handicraft articles, silk, textiles, animal by-products, electrical home appliances, general merchandise, furniture, kitchen equipment, detergent appliances, electronic products, sporting goods, musical instruments, medicines & health products, rubber articles, hardware, mineral products, machinery equipment and chemical products, etc.

In addition, discussions for economic & technical cooperation and travel services will also take place in the Fair.

Business representatives from France and other European countries are cordially welcome to visit our hall from April 2nd to 11th and inquire trade opportunities.

For sophisticated, comparable analysis of financial data I look to MicroEXSTAT

TREVOR NASH
BARCLAYS DE ZOTTE WEDD

EXTEL
financial

All you ever need to know

London: 01-251 3333 Brussels: 02-219 1607 New York: 212-513 5770

Land Rover deal faces ballot after meeting chaos

BY RICHARD TOMBONS, MIDLANDS CORRESPONDENT

A CHAOTIC mass meeting of Land Rover's striking production workers broke up angrily yesterday after it became clear that a peace formula would not increase the value of the company's two-year pay offer.

The 6,000 manual workers were called to the open-air meeting to decide whether to accept the formula and return to work after a strike which has halted production for nearly five weeks.

The meeting ended in uproar and confusion after details of the offer had been spelt out and a show of hands failed to produce a majority on whether or not to accept the proposals.

The company is helping the unions conduct a speedy postal ballot of the workforce in the hope of achieving a conclusive result on Saturday afternoon. Meanwhile, the strike will continue.

The revised pay formula makes only small changes to the existing two-year offer. It has been achieved through juggling sums paid in basic rates, attendance allowances and bonuses without changing the total cost to the company.

Under the original offer, a grade three worker's basic pay would have risen from £145.50 a week to £155 in the first year and £165 in the second, and the attendance allowance would have

risen by £1.50 for the whole period.

Part of the pay rise would have been funded by consolidating 23 worth of productivity bonuses into basic pay in the first year and adding 23 worth in the second. About 22 worth of the lost bonuses would have been offset by productivity scheme improvements.

Under the revised offer, the £1.50 a week increase in attendance allowance becomes a separate allowance in the first year and will be lost only through absence, not through bonuses.

Many workers at the meeting were angry after hearing rumours that the deal would produce no more money.

Their anger was not improved by the torrential rain which turned the venue, a sports ground near the plant, into a sea of mud.

Union officials told the meeting that the offer was the best they were going to get and recommended members to accept it. But the request for a show of hands was drowned in protests which left many workers unsure what they were voting for.

Mr Stan Hill, Land Rover convener, claimed the recommendation had been carried, but was howled down by protests and shouts of "Ballot, ballot." He quickly gave way.

ILO study shows fall in strikes

BY PHILIP BASSETT, LABOUR EDITOR

THE NUMBER of strikes internationally is falling, but disputes are higher and becoming longer, according to a study by the International Labour Organisation.

In 1986, the most recent year for which full international data are available, the ILO says that 65.3m working days were lost through strikes in 52 countries. Three quarters of the loss occurred in Canada, Finland, India, Italy and the US.

Strikes, measured by the number of working days lost, rose in Canada, the US, New Zealand, Norway, Panama, Portugal and Finland. Countries showing

fewer disputes included Denmark, Indonesia, Mexico, Sri Lanka, Tunisia and the UK.

The ILO advises against making international comparisons because of the different ways in which countries compile statistics. However, strikes based on the roughly comparable terms of days lost per 1,000 people employed shows the figure in Finland, India and New Zealand at more than 500.

Between 500 and 400 days were lost in Canada, Greece, Norway, Panama and Peru, while Egypt, Malawi, Singapore and Switzerland lost less than a day per 1,000

workers.

The number of strikes fell in 1986 from 15,500 the previous year to 14,500. But each strike involved an average of 87 workers, up from 81 in 1985, and lasted about 3.5 days compared to five the previous year.

In most of the countries, fewer than 400 workers took part in each strike, and there were fewer than four days lost on average per striking worker.

However, a few big and long strikes weighted the average. In the US, for instance, each worker in dispute lost an average of 29 working days.

UK NEWS

David Barchard reviews the quickening pace of change in Britain's building societies

Abbey rises on new foundations

BY DAVID BARCHARD

IT IS THE route we must follow to meet the future needs of our members and to preserve the future strength of the Abbey National in the market place," said Sir Campbell Adamson, the society's chairman, when announcing that the Abbey had become the first building society to take the plunge and shed its mutual status.

The Abbey is proud of its record of being first in the building society world. In 1953 it led the way in breaking with the cartel which, until that date, had set interest rates for the societies.

Until then, the building society industry had been a serene backwater of the financial world in which societies were expected to do only two things: they collected savings from their members and they lent money to people wanting to buy their homes.

During the 1960s the building societies have seen their secure world shaken beyond all recognition. Electronic technology has revolutionised retail financial services. The British homeowner and saver has become far more sophisticated than he was a decade ago, largely because of increased personal wealth.

Along all the mortgage market, the traditional area in which the building societies made their money, was invaded by new players, such as the UK clearing bank, foreign banks, and later the mortgage corporations.

By the third quarter of last year, building societies found that their share of the mortgage market had dropped below 50 per cent. To fight back in an increasingly competitive environment, they had long been asking the

government to relax the restrictions on what they could do.

The fruit of these pressures was the 1985 Building Societies Act which freed them to diversify into new fields such as estate agencies and unsecured personal lending and allowed them to raise a proportion of their funds from wholesale sources.

Once the major building societies had begun to proceed down this course, they rapidly found themselves moving into new products which required large scale investments to enable them to compete with the banks.

A headstart was in market began as building societies wooed new customers by offering them products such as credit cards, cheque books, unit trusts, branded insurance products, personal loans, and share purchase schemes.

The larger societies quickly found that the new freedoms granted them in the 1985 Act were not sufficient to enable them to compete effectively with the banks. In January this year, the Government again relaxed restrictions on their operations by revising Schedule 2 of the 1985 Act. The ceiling for wholesale funding was raised from 20 to 40 per cent.

Building societies were allowed to take minority stakes in stockbrokers and unit trusts. By then the worst pressures on the building society industry had subsided. In the wake of the October Stock Exchange Crash, savings were flowing back into the societies in record amounts.

Their share of the mortgage market had crept back up towards the 60 per cent mark.

These kind of short term fluctuations in the market have been helpful but they have probably not affected the strategic thinking of the larger societies very much. They know that they are now large retail finance organisations in an open and increasingly competitive market.

By turning into companies with a banking licence from the Bank of England, building societies will be able to engage in activities presently closed to them. More importantly they will be able to raise equity capital. Assets in the building society movement are heavily skewed



Sir Campbell Adamson

towards larger societies. There are over 130 building societies in Britain and the three largest, the Halifax, the Abbey National, and the Nationwide Anglia, have about half the total assets, and 80 per cent is concentrated in the top ten societies.

As long ago as 1985, the Abbey's executives were saying that they would probably take the public limited company (PLC) route. Other societies have moved more slowly. The Halifax appointed N.M. Rothschild in January to advise it on incorporation, but says it is still undecided. The Nationwide Anglia says that it is not at present envisaging incorporation. Their size gives these societies a certain freedom of choice.

Smaller "second tier" societies face a much harder set of decisions. Some may hope to continue as they are, but the chief executive of one smaller society, Mr Andrew Longhurst of the Cheltenham and Gloucester, says that he thinks conversion is "inevitable" although his society's market share is too small for conversion to be feasible at this point.

These smaller societies have the obvious option of merging with other societies - although mergers in the building society world often prove debilitating. A less obvious one would be to incorporate by being absorbed into an existing company.

Several sets of negotiations with this end in mind are believed to be under way between life insurance companies, and industrial conglomerates on one hand and building societies on the other.

Management faces testing time on route to banking

Richard Waters examines the path and pitfalls facing Abbey as it moves towards new business and financial operations

ABBAY NATIONAL'S 14 main board directors may have experience of running a building society, but they know much about running a bank.

Just one of them, non-executive Sir John Tennant, a director of Clydesdale Bank, has banking experience, according to biographies of the directors published by the society yesterday.

This could pose one of the biggest obstacles to the Abbey's plans for its future. Last year's Banking Act placed a new emphasis on the management skills of would-be owners of a bank. It introduced a more formal "fit and proper" test to grant banking licences, while leaving considerable discretion to the Bank of England.

The Abbey will have little problem convincing the Bank that it knows how to run its existing business, which is the most commercially-minded of the large building societies.

But building societies, which are still dominated by retail deposit taking and domestic mortgage lending, are relatively simple institutions to run. Moving into new areas of business like unsecured lending and other financial services - one of the main reasons given by the Abbey for becoming a bank - demands new skills.

Two of the Abbey's three executive directors have spent most of their careers with the society, while the third, chief executive Mr Peter Birch, was managing director of Giltspur (UK) until 1984.

The bank is unlikely to refuse the Abbey a banking licence on these grounds. But it casts a careful eye over institutions' business plans, and has ways of influencing the pace at which banks move in their chosen direction.

One of its most powerful weapons is the ability to impose conditions on banks if it thinks they are taking extra risks. Capital requirements could pose a second problem for the Abbey. The ratio of capital to assets, a sign of an institution's financial strength, which is required by the Building Societies Commission is considerably less stringent than that required by the Bank of England.

At its year end, the Abbey's capital ratio stood at 8.9 per cent; to become a bank, it would have to increase this to at least 7 per cent, according to a rough calculation by Dr John Wriplesworth at Phillips and Drew. This would soak up more than half of the £2m that the Abbey is thought to

be able to raise in a flotation. This stringent capital regime is due to be eased in the future. The Bank-based Bank for International Settlements last year proposed consistent capital requirements for institutions in different countries. One proposal is that domestic mortgage lending be given a risk weighting of only half that of most other banking assets. If adopted, this would bring the minimum capital ratio required of the Abbey bank down to roughly what it is as a building society.

But this is still some way off. The BIS plans have been published for consultation and are intended to apply by 1992. Even if the Bank of England accelerates this timetable, an early flotation for the Abbey could leave it with more onerous capital costs.

The conversion process itself is not out of the way. The Building Societies Commission has dragged its feet on issuing the transfer rules: it published draft rules in December, but was unable yesterday to say when final rules would emerge.

Perhaps the most difficult stage of the transfer will be to convince the society's members to vote for the change.

Under the draft transfer regulations, at least 20 per cent of the Abbey's 7m members must vote, and at least three quarters of these must be in favour of the switch. Mobilising the necessary 1.6m people to vote for the change will not be the least of the Abbey's problems over the coming months.

Cleveland Bridge wins dockland project

BY ANDREW TAYLOR

CLEVELAND BRIDGE, part of Trafalgar House the British construction, property, shipping and hotels group, was last night believed to have won one of Europe's biggest structural steel contracts.

The contract to make and erect the steel frame of a 50-storey office tower on the Isle of Dogs in London's docklands is expected to be announced today by Olympia & York the Canadian property and resources group.

The tower will form the centre piece of the 24th Canary Wharf office project being developed by Olympia & York.

The structural steel contract for the tower, estimated by UK steel fabricators to be worth around £30m will be the largest steel contract for a commercial building in Britain.

The tower will rise with an office development proposed for Frankfurt's trade fair complex for the title of Europe's tallest building. The developer of the Frankfurt project is Tishman Speyer Properties based in New York.

Cleveland Bridge is thought to have been the only British bidder for the Canary Wharf contract which British steel fabricators had expected to be awarded to Canon, a Canadian company which has worked widely with Olympia & York.

Despite strong competition and protest from US steel fabricators, Canon had previously won the main steel contracts for three out of four office blocks for Olympia & York's 8m sq ft World Financial Centre development, at Battery Park, New York.

There are many reasons why ETC Thomas Cook MasterCard Travellers Cheques are Europe's first choice.

They are conveniently available at thousands of selling agents in 29 European countries and are issued in a choice of 12 currencies.

The name of Thomas Cook is well known throughout the world and with the added support and recognition of MasterCard International, there are over 4.5 million shops, hotels, restaurants and banks pleased to accept ETC Thomas Cook MasterCard Travellers Cheques.

Thomas Cook has a greater refund network than any other travellers cheque issuer with over 110,000 refund locations worldwide ready to give fast assistance in the event of travellers cheques being lost or stolen.

And with the support and recommendation of the majority of Europe's leading banks, symbolised by the euro travellers cheque logo, it is no surprise that ETC Thomas Cook MasterCard Travellers Cheques are Europe's first choice.



Europe's first choice



HOW ARE YOU MANAGING?



Keep a firm grip on your company fleet. Talk to the leading experts in fleet management and contract hire. Ask for Tom Ford on (0743) 241121.

Fleet Management Services Ltd.

Over 30 years in the driving seat.



WINNING LEADERSHIP IN WORLD MARKETS



ADDING TO OUR STRENGTHS



BUILDING ON SUCCESS

1987/88 RESULTS: RECORD PROFITS

	1987/88 £'000	1986/87 £'000
Sales	503,802	408,427
Profit Before Tax	40,290	30,219
Earnings Per Ordinary Share	11.3p	10.4p
Dividends Per Ordinary Share	4.5p	4.25p

Since the early 1980s, Tootal has been transformed from a commodity textile producer to a group which generates growth by seeking out and exploiting markets where it can bring

together its marketing, sourcing and distribution skills. This successful transformation is reflected in profit growth to £40.3 million in 1987/88 from £30.2 million in 1986/87.

The acquisitions of Standard-Coosa-Thatcher and Sandhurst Marketing in 1986 and the thread joint venture in China in 1987 demonstrate our strategy in action. The Group is now market leader for industrial thread in the USA and the integration of Standard-Coosa-Thatcher has transformed the profitability and returns of The American Thread Company. Sandhurst Marketing has shown strong growth and improved market penetration, particularly in stationery distribution, in its first year under our ownership. Following the success of the first joint venture in China a similar venture in thread yarn manufacture is announced today.

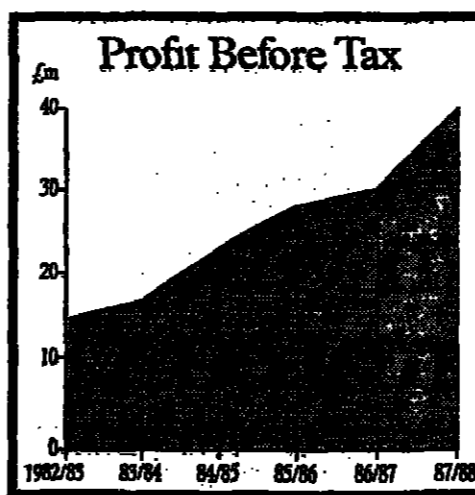
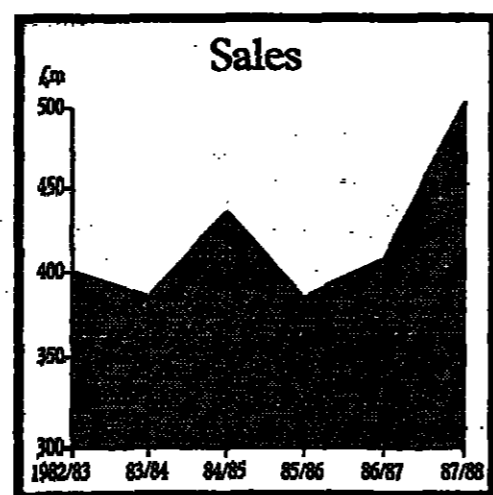
This investment is based upon our strategy of gaining access to quality controlled and cost-competitive sources of yarn for use in the Far East and elsewhere. Plans are well advanced for market entry into a number of countries with rapidly growing apparel industries where Tootal does not currently distribute thread.

The Directors propose to raise approximately £54.2 million after expenses by way of a rights issue. Of this amount approximately £16.7 million will be used to purchase the 49.9%

interest in our Specialised Materials' joint venture, Lantor International. Tootal has managed Lantor since it was established in 1956; the acquisition reflects the Board's confidence in Lantor's excellent potential for profitable growth. This will come through the development of existing products and markets, by the continued expansion into new markets and from the introduction of new products.

The balance has been designated for strategic investment across a number of business areas. As the reduction in gearing from 44% to 36% in 1987/88 clearly demonstrates, the existing organic investment requirements of the Group can be internally funded. Each business area in the Group has developed clear plans for growth which are at varying stages of implementation, and the rights issue will provide the Group with the resources for timely acquisitions, new product investments and expansion into new geographic markets.

Now is the time for Tootal Group to build on success by adding to our strengths.



John Craven

John Craven
Chairman
23 March 1988



If you would like to know more about Tootal Group, write to: Audrey Lloyd-Kitchen, Director of Corporate Affairs, Tootal Group plc, Tootal House, 19/21 Spring Gardens, Manchester M60 2TL.

These results are extracted from the full Tootal Group accounts for the year ended 31 January 1988 which we are advised by our auditors will carry an unqualified audit report.

UK NEWS

Policy of large-scale conifer planting continues

BY BRIDGET BLOOM

BRITAIN'S forestry policy will continue to encourage large-scale conifer plantations in Scotland and Wales. However, the planting of broadleaved trees in lowland areas is to receive official encouragement.

New forestry grants were announced yesterday, indicating a continuation of the controversial forestry policy in the wake of last week's Budget decision to abolish forestry tax incentives to the rich.

Grants for planting conifers and broadleaved trees have been raised by between 50 per cent and 75 per cent.

However, those which will apply to the large-scale planting of conifers have nearly trebled

and those for large-scale broadleaved planting have doubled.

The new rates were announced by Mr Malcolm Rifkind, Secretary of State for Scotland, in a written parliamentary answer.

Sir David Montgomery, chairman of the Forestry Commission, which is responsible for the implementation of policy, said conifer planting in Scotland and Wales would be essential if the Government were to meet its target of 33,000 new hectares of forest a year.

Last week, Mr Nicholas Ridley, Environment Secretary, and Mr John MacGregor, Agriculture Minister, said the massive planting of conifers would be discouraged in England. However, Sir

David said yesterday this would not apply to Scotland.

Sir David said the new forestry grants had been devised to try to replace the tax incentives abolished last week.

These allowed the cost of establishing plantations to be set against tax from other sources, while capital gains tax was avoided when the plantations were sold. Forestry will now be out of the tax system.

The old system encouraged planting in marginal areas such as the Flow Country in northern Scotland and was criticised by conservationist bodies, including government quangos such as the Nature Conservancy Council.

Government expected to seek N Sea block bids

By Steven Butler

THE DEPARTMENT of Energy is expected today to offer about 70 blocks of acreage in the 11th Licensing round for offshore oil exploration in Britain's continental shelf.

Oil companies' interest in bidding for the licence blocks has been heightened by recent large oil finds in the North Sea.

Companies have already begun forming groups to submit proposals and intense competition is expected.

Interest is likely to be highest in the mature areas of the North Sea, where improved understanding of the geology has raised hopes of further finds of commercially-exploitable oil reserves.

The costs of exploration and production have fallen dramatically.

But exploration efforts could be affected if oil prices continue to be weak. Oil companies will be interested in flexibility in exploration proposals.

The tax regime in Britain's offshore areas is considered one of the most attractive in the world, and companies are keen to participate in an area which is seen to be politically stable.

Air traffic upgrading to cost £600m

BY MICHAEL DORRIS, AEROSPACE CORRESPONDENT

THE Civil Aviation Authority plans to spend close to £600m between now and the year 2000 on improving air traffic control facilities to cope with rapidly growing air traffic.

The authority has already announced £200m of this investment for the period 1987 to 1992, but said yesterday that between a further £300m to £400m is now being planned for the period from the mid-1990s to the end of the century. The authority spent £125m on improving the facilities in the five years from 1981 to 1986.

The authority stressed that the programme had been in the planning stages for several years and was not a reaction to recent public concern about "air-misses".

Part of the investment will be directed at changing air traffic control methods to reduce the dangers of air-misses, but overall it is intended to enlarge and improve the system to cope with the current, and anticipated, rapid growth in air traffic.

Of the £200m to be spent in the next five years about £50m will be used to improve and expand the London Air Traffic Control Centre at West Drayton, near Heathrow.

Other outlays include £50m on replacing ageing radar, £25m on a

new computer, and £25m on what is called a "Central Control Function".

The latter is a method of channeling inbound and outbound aircraft along separate "tunnels" in the sky, each tunnel under the command of a controller with total authority over all the aircraft in that sector.

The further outlays of between £300m and £400m now planned for the mid-1990s onwards will broadly be spent in three areas, although many details have still to be settled.

The most expensive, accounting for at least £150m, will be the development of an enlarged London Air Traffic Control Centre

(called LATCC II, which will be built on a new site, as yet to be determined).

Of the other two one will be the improvement of the Scottish Air Traffic Control Centre, at Prestwick, Ayrshire, which is also experiencing a big growth in traffic.

The other will be the introduction of advanced technology "microwave landing systems" to replace instrument landing systems installed at large airports. This technology will enable more aircraft to take off and land on the runways available.

fourth quarter. However, Mr Dugald Eadie, chairman and managing director of WM Company, said this figure contained certain prior commitments on funds, including the BP issue underwriting.

The WM survey showed that the UK equity holding of funds in the survey showed a positive 1.1 per cent return over the year, despite the October market fall, although it was running at 30 per cent at the end of September.

The most successful investment sectors for pension funds last year were UK property, up 18.4 per cent, and UK bonds, up 16.4 per cent.

Overseas investment by pension funds performed poorly last year with equities down 18.5 per cent, property down 14.1 per cent and bonds down 1 per cent. However, Mr Eadie said, much of this fall came from the weakness of the US dollar. Few fund managers hedged their currency position.

Overall the top performing fund in the survey showed a positive return of 24.7 per cent.

Funds sold overseas holdings after crash

BY ERIC SHORT

PENSION funds sold overseas equities heavily following the stock markets' collapse, according to figures published yesterday by the WM Company.

The Edinburgh-based WM Company, now a member of The Bankers' Trust Company of New York, is Britain's largest provider of performance measurement services, for domestic and globally invested portfolios. It measures the performance of nearly three-quarters of the British pension fund market.

Its pension fund service for last year provided statistics on 1,279 funds with combined assets of £136m, including almost all the leading pension funds in Britain.

This showed that these funds sold £2.47bn of overseas equities in the final quarter of last year, having been net investors in the previous three quarters ahead of the stockmarket collapse.

This left funds at the end of the year with 14 per cent of assets in overseas equities compared with 30 per cent at the end of 1986.

Pension funds continued to be net investors in UK equities, including £1.14bn invested in the

Failed life company to pay policyholder bonus

BY ERIC SHORT

MORE THAN 50,000 policyholders who had investment contracts with London Indemnity and General Insurance, the life company, are to receive a bonus payment from the company, which will be the first such payment since the company failed in October 1974.

The company, a member of Jessel Securities, which itself went into liquidation, was one of the first certain life companies to run into difficulties as a result of the financial crisis in 1974-75.

It was rescued by a consortium of 40 life companies and a bank. Prudential Assurance took over the management on behalf of the consortium.

The terms of the rescue involved policyholders taking a 10 per cent cut in their benefits, with the consortium guaranteeing these reduced benefits. The terms were considered generous at the time.

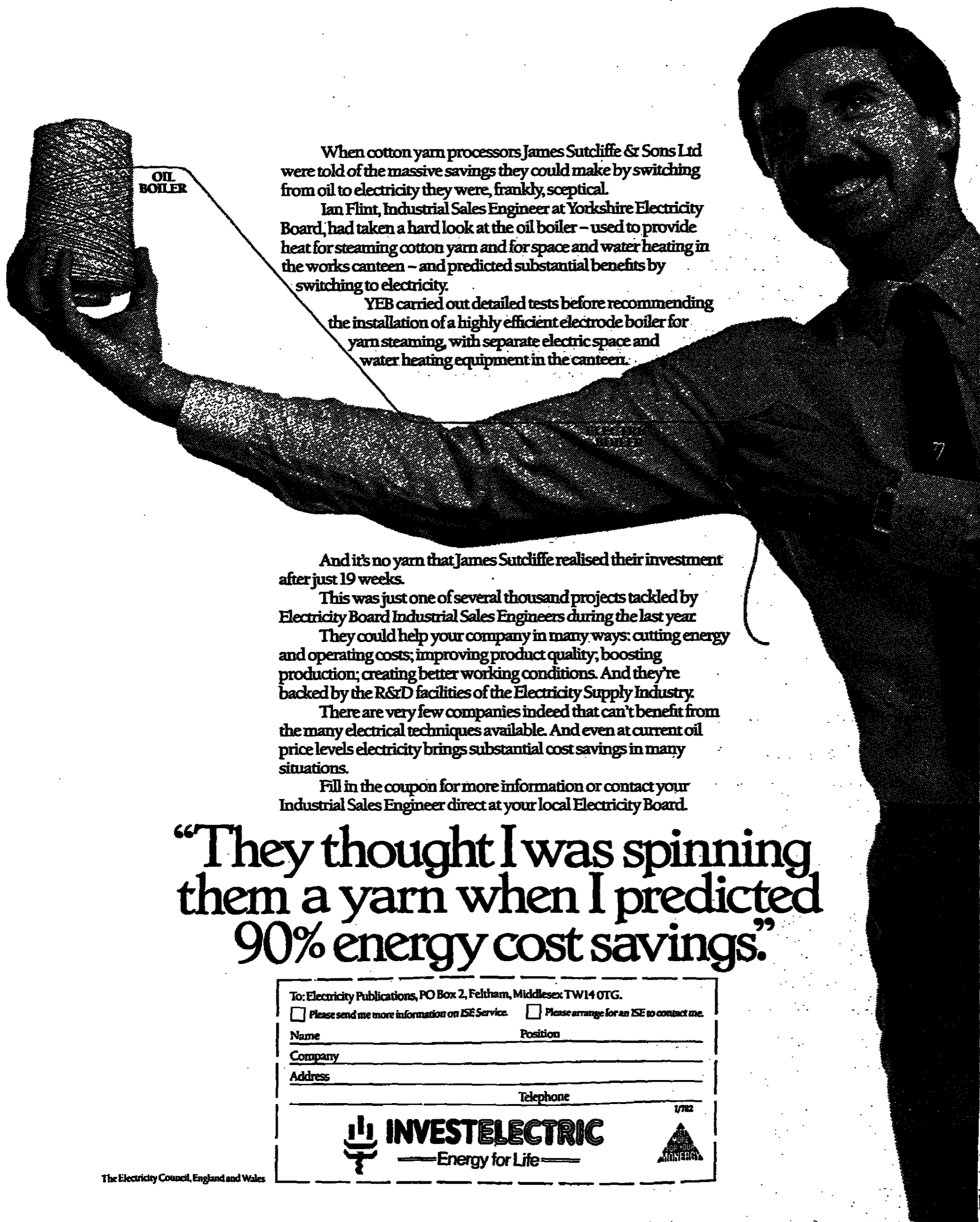
The underlying investments were so mismatched with the liabilities that it was thought that the consortium would have to put up money to maintain the solvency.

In the event, the Prudential was able successfully to renege the portfolio so that there was no call on the consortium by members. The fund amassed a £5m surplus.

The managers intend to pass on this surplus to all policyholders.

The managers' problem is tracing those policyholders who have already received their benefits.

These policyholders will be written to at their last known address, but the managers hope that policyholders will contact the company at Dept LIGI/XS, Forbury House, 18-20 The Forbury, Reading RG1 3ES. The offer is valid for two months.



When cotton yarn processors James Sutcliffe & Sons Ltd were told of the massive savings they could make by switching from oil to electricity they were, frankly, sceptical.

Ian Flint, Industrial Sales Engineer at Yorkshire Electricity Board, had taken a hard look at the oil boiler - used to provide heat for steaming cotton yarn and for space and water heating in the works canteen - and predicted substantial benefits by switching to electricity.

YEB carried out detailed tests before recommending the installation of a highly efficient electrode boiler for yarn steaming, with separate electric space and water heating equipment in the canteen.

And it's no yarn that James Sutcliffe realised their investment after just 19 weeks.

This was just one of several thousand projects tackled by Electricity Board Industrial Sales Engineers during the last year.

They could help your company in many ways: cutting energy and operating costs; improving product quality; boosting production; creating better working conditions. And they're backed by the R&D facilities of the Electricity Supply Industry.

There are very few companies indeed that can't benefit from the many electrical techniques available. And even at current oil price levels electricity brings substantial cost savings in many situations.

Fill in the coupon for more information or contact your Industrial Sales Engineer direct at your local Electricity Board.

"They thought I was spinning them a yarn when I predicted 90% energy cost savings."

To: Electricity Publications, PO Box 2, Feltham, Middlesex TW14 0TG.

☐ Please send me more information on ISE Service. ☐ Please arrange for an ISE to contact me.

Name _____ Position _____

Company _____

Address _____

Telephone _____

INVESTELECTRIC
Energy for Life

The Electricity Council, England and Wales

BIOTECHNOLOGY

The Financial Times proposes to publish this survey on:

May 27th

For a full editorial synopsis and details of available advertisement positions, please contact:

Stephen Dunbar-Johnson
on 01-248 8000 ext 4148

or write to him at:

Bracken House
10 Cannon Street
London
EC4P 4BY

FINANCIAL TIMES
EUROPE'S BUSINESS NEWSPAPER

SAUDI ARABIA

The Financial Times proposes to publish this survey on:

5th APRIL

For a full editorial synopsis and advertisement details, please contact:

HUGH SUTTON
on 01-248 8000 ext 3238

or write to him at:

Bracken House
10 Cannon Street
London
EC4P 4BY

FINANCIAL TIMES
EUROPE'S BUSINESS NEWSPAPER

Smoking at work. Are you scared to open your mouth?

If you're a non-smoker who works with smokers, you probably suffer in silence.

Yet everybody has the right to a healthy working environment.

And an office or workshop full of nicotine, tar and carbon monoxide is hardly that.

Breathing other people's cigarette smoke (passive smoking) is now a proven health hazard.

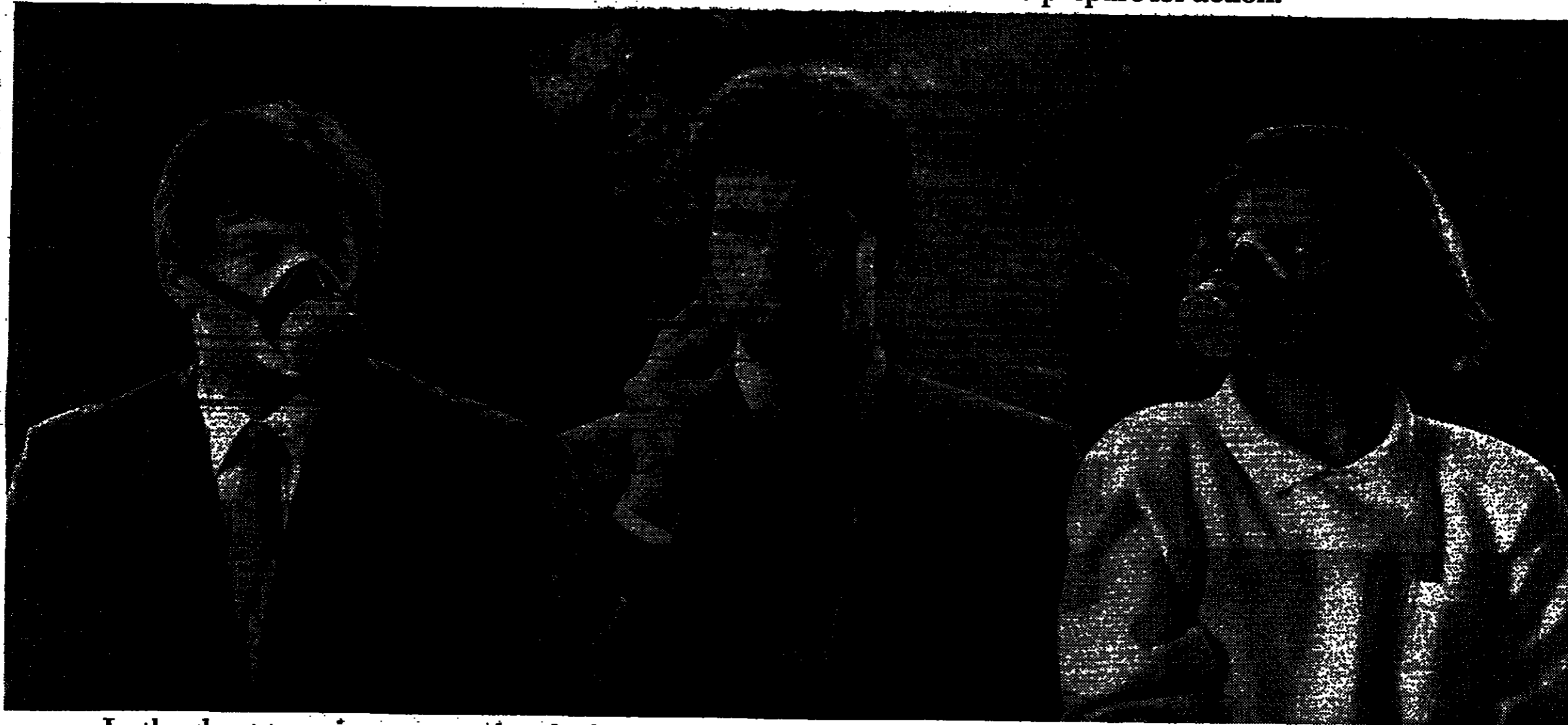
In recent years, many companies have successfully established a smoking policy at work.

Their experiences are well worth reading.

The Health Education Authority has published a booklet called "Smoking Policies at Work."

As well as outlining several case histories, it sets out ways and means of tackling the problem.

How to prepare for action.



In the short term it can cause headaches, nausea, stinging eyes and sore throats.

The long term effects are even more disturbing.

Yesterday's report by the Independent Scientific Committee on Smoking and Health has confirmed that passive smoking increases the risk of lung cancer by 10-30%.

Despite such evidence, many employers are still reluctant to introduce smoking restrictions at work.

Ironically, they think it would create an even worse atmosphere than the smoke itself.

Recent research suggests otherwise.

An NOP survey* carried out last year shows that 8 out of 10 smokers agree with the statement: "In general, people who don't smoke should have the right to work in air free of tobacco smoke."

Clearly, potential conflict between smokers and non-smokers is over-estimated.

How to arrive at the best policy for your own workplace.

And how to implement it.

The booklet, which costs £5, can be obtained via the coupon below.

Please urge your employer to send for a copy, or failing that, send for one yourself.

Smoking at work has never been such a burning issue.

To: Supplies Dept, Health Education Authority,
78 New Oxford Street, London WC1A 1AH.

Please send me ___ copies of "Smoking Policies at Work."

Each copy costs £5. I enclose a cheque for £___
made payable to the Health Education Authority.

Name _____

Address _____

FT _____



MANAGEMENT: Marketing and Advertising

Much talk of cheeky friends in Brighton

Antony Thorncroft reports on this year's market research conference

THE THOUSAND plus market researchers gathered in Brighton last week for their annual conference bent their minds to a string of questions about advertising for the packaged goods industry.

"Can brands be cheeky?" asked Mick Ait and Steve Griggs of Creative Research. "A great ad - they can't remember the brand" was the title of a contribution from Roy Langmaid of the Research Centre and Wendy Gordon of The Research Business.

Heather Mulholland and Mark Harrison of Mulholland Research Associates attempted to define female attractiveness in advertising "the semiotic way". Geoff Nalley of IDS and Leigh Slope of Allen Brady & Marsh examined the advertising of the Milk Marketing Board under the slogan "How much bottle has 'bottle'?" (Conclusion: while in the past the board's advertisements could feature heroes who were both rebellious and anti-heroic, now they had to be heroic in their rebelliousness.)

As usual the research rarely produced clear cut answers. One survey showed that consumers had no trouble at all in wrestling with the concept of a brand being a cheeky friend. Whether they go out and buy their friends was not quite so obvious.

Among lagers, Carlsberg was more popular as a chum than

Hofmeister, among washing powders Persil more befriended than Daz.

These results reflect the brands' respective positions in the market place - but Seven Up engendered more matey feelings than Coca Cola, which easily outsells it. As the researchers concluded "perhaps quite simply more people preferred the taste of Coca Cola."

It should worry the advertising industry more than it does that the public has almost total forgetfulness next day about the commercials they saw on TV the previous evening.

But Langmaid and Gordon, in their contribution, suggested that agency and advertiser need not worry too much. Under hypnosis consumers could string off the plots of commercials of brands they did not recall when conscious. If buyers shop in a semi-trance, a brand that scores poorly in advertising recall could still be a winner. But do they?

Britain's first professor of market research, Martin Collins, of the City University Business School, examined how well research had done in the opinion polls at the 1987 General Election.

At first glance the polls read the election well. They got the result right and the 3 per cent margin of error would be per-

fectedly acceptable as a basis for a commercial judgment. But Collins warns that this margin of error has yet to be, and perhaps can never be, eliminated, and in a closer, more confused, election, the pollsters could not guarantee such an accurate forecast.

The collective annual turnover of the hundreds of market research firms, which range in size from AGB, with its UK sales of over £33m, to the vociferous one man bands, is now fast approaching £250m, and growth in 1987 was around 17 per cent.

According to the Association of Market Survey Organisations (Amso), which counts as members the 32 larger research companies which account for two thirds of survey business, assignments from consumer goods manufacturers now account for 42 per cent of their research turnover, down from 51 per cent in 1981. The Unilevers and Brookes Brothers are spending as much as before, or more, but bigger budgets from other clients have fuelled the growth.

Not all of these represent fresh opportunities. The media was the source of 9 per cent of Amso turnover last year, as against five per cent in 1981.

The obvious new sources for research - financial, industrial, public services - did their bit, with financial institutions contri-



buted 5 per cent of turnover, as against 2 per cent in 1981. Spending by industrial companies doubled to 4 per cent, and public services, such as British Rail, raised theirs from 2 per cent of the Amso total to 5 per cent. The Government, however, has halved its share of expenditure, to 4 per cent of the total.

Research is obviously riding high on the prosperity, and profitability, of British business. While companies are expanding, they need research to evaluate new investment opportunities. Perhaps most encouraging for the research companies has been their success in attracting overseas business. Amso members received £120m from abroad last year, and for companies like AGB, overseas revenues are more important than domestic sales.

The prosperity of research companies has not gone unnoticed. Some, like Taylor Nelson

and MAS, have been absorbed into the Addison Communications Group; others like Millward Brown and MIL, have been floated successfully.

The industry faces an exciting future, not least because of the change of ownership of Nielsen, traditionally second in size to AGB in the UK, though largest in the world. It has been bought by Dun & Bradstreet, which is looking for tremendous growth, mainly through acquisition. Nielsen has already bought three small companies in the UK and could well diversify outside its traditional retail audit dominance. It will be a competitor for the television audience measurement contract when it comes up for renewal next year.

Prosperity has given researchers more confidence; they want to develop into consultants, to be appreciated for their skill in interpreting and applying the facts they unearth.

Busy women need less hassle

David Churchill on the implications for marketers of changing roles in society

THE NUMBER of British women entering the professions has doubled since the beginning of this decade; as many women as men are now being articulated to solicitors or entering medical school.

Indeed, the role of women in today's society continues to change rapidly, and although stereotypical images are being seen less frequently, there are still some advertisers and marketers who need to take a sharply different approach when trying to woo the female purse.

This view is underlined by the findings of a study - Women 2000 - published today by the Mintel market research company. In all areas of life, says the study, the role of women is in flux.

Marriage: Women appear less satisfied with the quality of their relationships than men and are increasingly prepared to dispense with a unsatisfactory partnership. More than two thirds of all divorce petitions, Mintel points out, are filed by women. Only 8 per cent of men fulfil the traditional role of breadwinner with a dependent wife and two children.

There is an emphasis for women on independence and freedom, an emphasis which is common to both married and single women, mothers and the childless, and has implications for the way household and personal discretionary income will be spent, says Mintel.

active, Mintel points out. "More than half of all married women work and women no longer see child-rearing as signalling the end of their working lives, but as an interruption to it," the report says.

Women, Mintel adds, contribute substantially to the household budget and are very definitely working in order to do so rather than for pin money. The report points out that the changing role of women has been greater for some than others, notably the growing number of professional women now competing with men for jobs and promotion in areas that were once entirely male-dominated.

Manufacturers will need to target products more closely to specific groups of women at all stages of the marketing process, including new product development.

It adds: "Given that women have quite decided ideas about what they would like to do with their time and money, they should be considered an influential group by advertisers outside of the fast-moving consumer-goods sector."

But, Mintel warns, "while this does present dangers for those whose business depends on successful communication with women, there are also very real new opportunities to be exploited."

Mintel believes that the increasingly busy nature of women's lives will place an even greater premium on convenience than at present.

This will therefore give greater emphasis to superstore or one-stop shopping developments - and will consequently encourage the increased penetration of own brands in many product areas. Shopping: Women, according to the report, also regard shopping for goods other than necessities as a leisure pursuit. The implication of this, says Mintel, should be considered by retailers; shopping environments should minimise hassles such as poor parking and long walks between shops and maximise the leisure and relaxation aspects.

Advertisers should also be aware of the need, says Mintel, to reflect the multiplicity of roles women now play.

Women appear unimpressed with advertisements showing supposedly glamorous or sexy women, according to the Mintel researchers. "The women that women themselves admire are those that are capable, able to laugh at themselves, and who appear warm and approachable."

Thus research revealed that the actress Felicity Kendal was much admired, while Joan Collins and Margaret Thatcher were less popular. Model Samantha Fox, not surprisingly, is seen by women as a very unattractive role model.

Women 2,000; Mintel, KAE House, 7 Arundel Street, London, WC2. Price £550.

Design: 50 per cent increase in income

Feona McEwan reports on one of the healthiest sectors of the UK economy

BRITAIN'S design industry is booming and that's official. Figures published yesterday by DesignWeek, the 18-month-old trade paper for what is still a young industry, indicate that it is one of the healthiest sectors of the British economy.

The 100 largest design companies in the UK report a rise in fee income of 50 per cent to total £300m in the past 12 months, with a further 30 to 40 per cent increase expected in the coming year. Figures also show that the number of designers employed has risen by 37 per cent, during the same period, to nearly 6,000.

Traditionally, the design industry has had a fragmented image based on a myriad tight-knit companies which

were less than keen on revealing vital company statistics to their rivals. But as recognition of the value of design as a business catalyst has spread, so the willingness by its practitioners to divulge data has been encouraged, too.

DesignWeek's full table encompasses 275 firms, and is based on the latest available audited figures supplied by mostly private companies or partnerships.

Notable by their absence in the top 20 table - specially prepared for the FT - is London, the US-owned corporate and brand identity specialists responsible for the British Airways revamp, and Y&M Partnership, the multi-disciplinary architecture practice behind the new north terminal at Gatwick.

Both declined to supply the income figures.

One of the most interesting points to emerge from the table, says Jeremy Myerson, editor of DesignWeek, is the slight swing on for instance of the design community.

At the top are giant multi-disciplinary groups like Building Design Partnership (which is working on the Channel Tunnel) and Martin Sorell's sprawling WPP Group. (Figures for WPP in the table also include cover design companies only, including McColl, the retail, specialist, and Business Design Group, the office planners.)

These are under pressure from core design practice on the one hand - like Michael Peters, Wolff Olins and Fitch -

and on the other by architectural practices newly moved into design such as Percy Thomas Partnership, The Company of Designers and DEGW.

Increasingly, architecture is being regarded as a larger part of the design consulting equation. "There is a view among core design businesses that the only way to be at the top is to have architectural weight," says Myerson. Michael Peters and Fitch have underlined this with recent acquisitions of architectural practices.

Re notes, too, that there is no one consultancy close to dominating the industry, as in, say, advertising circles. "Even the market leaders only have a small percentage of the market each," says Myerson.

THE UK'S TOP 20 DESIGN CONSULTANCIES

Design Group	1986-87 Design Fee Income £m	1986-87 Overall Turnover £m	Year Established	Number of staff	Range of disciplines offered
1 Building Design Partnership	36.00	36.00	1961	1310	ABCDG
2 WPP Group	32.10	32.10	1970	741	ABCDG
3 Michael Peters Group	19.79	25.12	1970	500	ABCDG
4 Addison Consultancy Group	12.74	20.22	1986	519	ABCDG
5 Fitch & Company	10.20	10.20	1973	370	ABCDG
6 Cambridge Consultants	8.50	8.50	1980	250	ACG
7 Holmes & Narver Group	7.81	14.57	1987	198	ABCDG
8 Percy Thomas Partnership	6.79	7.31	1912	268	ABEG
9 Corvan Design Group	6.10	6.30	1956	200	ABCDG
10 The Company of Designers	6.04	6.04	1968	279	ABDEFG
11 Imaginision	6.00	19.00	1978	151	ABCDG
12 Wolff Olins	4.70	7.50	1985	130	ABD
13 Design in Action	4.40	5.50	1984	98	ABCG
14 Minnie Tattersfield and Partners	3.15	3.15	1984	40	ABCDG
15 DGI International	3.00	40.00	1989	120	ABDEG
16 DEGW	3.00	3.70	1971	120	ABCEG
17 Design Associates	2.58	2.58	1986	80	ABCDG
18 Colwyn Porter Bell	2.30	2.30	1979	52	AD
19 Orington	2.00	2.61	1964	60	ABDEFG
20 Saunders Design	2.00	2.30	1979	50	ABDE

KEY: A = architecture; B = advertising; C = design; D = design; E = engineering; F = fashion; G = graphic design; H = interior design; I = industrial design; J = landscape architecture; K = product design; L = retail design; M = transport design; N = urban planning; O = other; P = public relations; Q = research; R = sales promotion; S = social research; T = training; U = visual communication; V = visual merchandising; W = writing; X = other; Y = other; Z = other.

CREDIT: DesignWeek

BUSINESS LAW

PLO's dilemma in US courts

By A.H. Hermann, Legal Correspondent

THE US Administration has lost no time simultaneously with the coming into effect of the Antiterrorism Act 1987, it applied on Tuesday to a New York court an order requiring the Palestine Liberation Organisation (PLO) to vacate its building at 115 East 65th Street - a desirable Manhattan address where it maintains its permanent Observer Mission to the United Nations. The court has also been asked to prohibit the PLO from either receiving or distributing funds in the US.

The PLO will have 30 days to submit its defence. The administration could probably ask for, and obtain, an interlocutory injunction for the immediate closing down of the PLO office but is under pressure from the UN not to do so. The UN is seeking support from the International Court of Justice in the Hague. On the other hand, the US case may be fortified by legal arguments derived from a private damage action brought against the PLO by the family of Mr Leon Klinghoffer, murdered by the hijackers of the Achille Lauro.

Let us take the UN/US dispute first. The State Department made it clear the Security Council of the UN that the powers it received under the Antiterrorism Act would be used to close down the office of the PLO permanent Observer Mission to the UN. The UN Secretary-General and General Assembly opposed this move and proposed arbitration which the US rejected.

The General Assembly of the UN responded to this by adopting two resolutions. One asks the International Court of Justice to say, in an advisory opinion, whether the present dispute over the PLO mission falls under Article 21 of the UN-UN Headquarters Agreement which requires that all disputes about the interpretation of the agreement should be referred for final decision to a tribunal of three arbitrators. The other resolution calls on the US not to take any action which would upset the present arrangements for the PLO mission.

The Court, sitting without much to do in the Peace Place, a questionable gem of Victorian architecture in the Hague, promptly asked the UN and the US, as well as any other interested member States, to submit their papers by tomorrow (March 25) and fixed the hearings for April 11.

It seems most probable that the Court will say that the US is obliged to submit to arbitration

but there is, of course, no way of forcing the US to abide by the court's opinion. The US court, asked for the eviction order, will have to decide in placing the Antiterrorism Act above the requirements of international law. However, even the position under international law is uncertain.

The questions of PLO status and its immunity have been the source of the Klinghoffer litigation. Giving evidence, Mr Tahar Terzi, the head of the PLO mission to the UN, stated that the PLO was the visible body of the Palestinian people; every Palestinian was assumed to be a member of the PLO; it was neither a government nor a state, but a national movement.

The PLO National Council,

The US are likely to claim that the PLO is not an organisation capable either of membership or observer status, because of its lack of international coherence and effective control over its component factions engaged in activities contrary to the UN Charter and proscribed by international conventions.

The arguments on the second issue have been rehearsed in the course of the Klinghoffer litigation. Giving evidence, Mr Tahar Terzi, the head of the PLO mission to the UN, stated that the PLO was the visible body of the Palestinian people; every Palestinian was assumed to be a member of the PLO; it was neither a government nor a state, but a national movement.

The PLO National Council,

mission out of mischief. Indeed, Mr Yasser Arafat's manifest disapproval of the hijack and his role in its termination would suggest that Mr Terzi was speaking the truth, and that the PLO is a pluralist movement without effective central control. And, as the US could then argue that the observer status with the UN. The Klinghoffer litigation also produced a number of other legal issues. One concerned the question of whether the PLO mission, and the now closed PLO information office in Washington, were "doing business in the US", thus providing ground for the New York court's personal jurisdiction over them.

In this connection it should be noted that the US Court of Appeals for the Second Circuit has recently accepted US jurisdiction over a Liberian shipping company's claim of damages for the bombing on the high seas of their oil tanker by the Argentinean air force during the Falklands conflict, and rejected Argentina's plea of sovereign immunity.

This goes even further than the assumption of jurisdiction based solely on the nationality of the victim when the wrong was done outside the jurisdiction by a foreign national. Such "passive jurisdiction" was not recognised in the US until 1964 when it was allowed, by the Comprehensive Crime Control Act, for criminal prosecutions of hostage taking and terrorism. This concept was extended to civil litigation by the New York District Court when it allowed the owners of Achille Lauro to be sued by the Klinghoffer family in the US.

If anyone feels that the assumption of such a, literally, far-reaching jurisdiction is rather extraordinary, he should look up the recent High Court judgment in *Holmes v Bangladesh Biman Corporation* (FT Law Reports, March 9 1988) when the Court of Appeal held that UK courts had jurisdiction over a dispute in which the claimant was a UK national and resident, the defendant the Bangladesh Air Line, and the disputed wrong giving rise to the claim's liability an accident on a domestic flight in Bangladesh. One of the appeal judges even said, though *obiter*, that UK courts would have jurisdiction even if the victim of the accident was a Bangladeshi national and resident.

Can extraterritorial jurisdiction - better known as the long arm of the court - go further than that?

We believe that cash refunds of VAT on departure from the UK will significantly increase retail sales to overseas visitors

say Richard Weir, Director General, The Retail Consortium

"We agree, and Tourist Tax Free Shopping is making every effort to establish cashpoints at all major British airports and seaports", says Lars Weidner, TFS' Managing Director. "These will join the 2,800 refund points already operated by our eight sister companies to form a pan-European service."

"TFS offers much more to retailers than a fast VAT refund service. We also provide professional support in the form of high quality display material, staff training, in-store promotions and staff incentive schemes. Retailers also benefit from our extensive marketing and promotional activities, here and abroad. All these benefits are completely free of charge to the retailers, in addition to which very many of our clients have reported increased sales to overseas customers since they adopted the TFS system."

For further information on how tax free shopping benefits the UK retail trade, call us on (01) 785 3277, fax us on (01) 785 7610, or write to Lars Weidner, Tourist Tax Free Shopping Limited, Europa House, 266 Upper Richmond Road, London SW15 6TQ.



Tourist Tax Free Shopping
Europe's Largest VAT Refund Service

Harari & Johns of London paid £59,400 for an interior by the Danish artist Peder Husted. In the general sale of European pictures Sotheby's offered a flower picture by an earlier Danish artist Johan Jensen. It was estimated at up to £20,000 and realised £220,000. Flower pictures are much in

FINANCIAL TIMES

BRACKEN HOUSE, CANNON STREET, LONDON EC4A 3DF
 Telegrams: Finantime, London PS4. Telex: 8954871
 Telephone: 01-248 8000

Thursday March 24 1988

The risks in going public

The decision by Abbey National to recommend to its members a change of status from building society to public limited company is a bold response to the new opportunities presented by the 1986 Building Societies Act. The question now faced by building society investors – the nominal owners of these mutual organisations – is whether such boldness makes sense. The short answer is that it may do for some, but the challenges and risks for those societies that do choose to go down the route towards full banking status are formidable.

The case for converting to a public limited company rests on the rapid changes now under way in the banking market. The dividing line between one type of financial institution and another has been blurred by deregulation and technological change. The consumer is also becoming more sophisticated, which is taken by bankers to mean that consumers want a wider range of services from the same bank. Competition has increased as the clearing banks and others have been given freedom to attack the building societies' traditional savings and mortgage lending markets.

Against that background building societies have argued that even after a recent review of the powers in the Building Societies Act, they are still hampered in competing with the banks, both in terms of their access to funds and their ability to move into new business areas. If they want to compete on equal terms with the banks, the new option introduced by the Act of going public has attracted much attention. Now that the Chancellor has removed the tax obstacles to conversion into a public limited company.

Wave of conversions

The problem, at the macro level, is that a wave of conversions among the larger societies could have worrying implications for credit because of the massive increase in the cash resources of the banking system. Abbey National, for example, made profits last year of £535m, equivalent to just over 40 per cent of Lloyds Bank's profits. But with no Latin American lending to depress its price earnings ratio, Abbey National could well find itself in much the

same league in terms of market capitalisation as Lloyds and the flotation would produce a massive cash inflow. It would then have the problem of finding profitable outlets not just for the increased capital but for the substantial increase in lending that the fresh capital would permit.

Like the 1986 at the time of its flotation, Abbey National is convinced that the money will not burn a hole in its pocket. It believes that it will initially be able to find outlets for its vastly increased resources in the mortgage market. It is not keen to open up its traditional and the lure of merchant banking has yet to cast a spell over the most ambitious of the building societies. Its managers are committed to a policy of continuing to concentrate on personal financial services.

Brave new world

Whether this approach proves profitable in the longer run, only time will tell. But there is no question that for the building societies as a group, the managerial consequences of a wider role in financial services will be very testing. Their original money gathering and lending operations were relatively low-risk and simple – far from an ideal background, in fact, for the brave new world of deregulated financial services. And it is a moot point whether going public will really enhance the quality of customer service in the way that the more aggressive building society managers claim. Mutual ownership, after all, delivered a much more effective savings marketing operation in the 1960s and 1970s than the discipline of the stock market produced at the clearing banks.

That is not to say that Abbey National is wrong to take up the challenge. It may be correct in thinking that there is as much risk in staying inside the building societies' depleted ring fence as in leaving it for the wider banking area. But it is hard to see how the building societies' original image of cosy solidity and security will survive in a world where new activities will sometimes be accompanied by eye-catching losses. And for the smaller fry in the movement, for whom conversion is not an option, the outlook remains problematic.

Terror and television

WHEN THE Government puts pressure on the broadcasting authorities, the natural tendency of those involved in the media is to spring to the defence of the broadcasters. This is not always the best response. The policies of Britain's television news organisations are not invariably without blemish, and they naturally come under particular scrutiny when film of the hideous cycle of violence and counter-violence in Northern Ireland is televised. Neither the BBC nor ITV News can escape such scrutiny. The reason is plain: where there are public demonstrations, riots, or "photo opportunities" the camera is seldom an innocent observer. It is usually a part of the event, which in many cases is staged purely as a means of gaining TV time for the promotion of a particular cause.

Reason for disquiet

Thus there is good reason for the disquiet expressed in parliament and elsewhere over TV coverage of a staged IRA "commemoration" complete with rifle salute of the three terrorists killed in Gibraltar. Mr Tom King, the Secretary of State for Northern Ireland, has previously rejected the notion of a ban on such coverage. But he added: "I am under no doubt that in a free society the media, particularly the television cameras, have a great responsibility for what they decide to broadcast. There may be a case for self-restraint by newspapers in such matters, but it is not nearly so strong as the argument in favour of such a self-denying ordinance by the TV companies."

For the power of the screen is immense. This is recognised by those who seek to exploit it, and should be recognised by those who produce it. Censorship would of course be the wrong answer; it is a matter for the broadcasters themselves. No individual piece of PR puffery by the IRA is the same as any other, and there may be compelling reasons for covering one while ignoring another. The important point is that the TV news executives should be aware of the need to make a choice. Their organisations would benefit from a gen-

eral statement that their editors would in future exercise discretion in what was to be televised about the IRA and its Protestant counterparts.

Camera as witness

The matter is more complicated when it comes to murders, such as those perpetrated by the mob last Saturday. The camera is not an innocent bystander at such events. It is an eye-witness. It could be argued that it is a witness of far greater importance than any ordinary citizen would be, since the scenes relayed by the camera serve to bring home to people the full force of what has happened. By showing last week's non-staged event in its full horror, TV exposed the IRA murderers for what they are. Yet a witness is a witness. A witness to murder has a civic duty to give evidence. This is the view taken by the police, who have asked for a copy of the unused film. The broadcasters at first refused to hand it over voluntarily, on the ground that this would place cameramen in danger on future occasions. This is a standard BBC and ITV policy. Even though the BBC was somewhat clumsy in proclaiming it this time, it did not deserve the especial opprobrium brought down on its head by Conservative backbenchers and indeed the Prime Minister.

The broadcasters can turn the argument around. If we are witnesses, they might say, then like other witnesses in such matters, we need protection. It would be impractical to provide TV cameramen with bodyguards, as is necessary for some Northern Ireland witnesses, but it is not especially unreasonable to ask for the degree of protection that might come from refusing to hand over any film until a court order made it obligatory (even if this means a change in the law). This could become the price that has to be paid for coverage of street terrorism, since, at the extreme, cameramen might decline to take on the work if their lives are put at too severe a risk. The public might accept such a price – but first it would have to be persuaded that the TV authorities know that they ought to steer clear of sheer public-relations charades indulged in by the IRA.

Ian Davidson considers France's presidential contest now that Mr Mitterrand has declared his hand

ALTHOUGH it seemed increasingly a foregone conclusion, France remained mesmerised until the last moment by the question: would Mr François Mitterrand stand for re-election in the forthcoming presidential election? Now that question has at last been disposed of, it is clear that it was obscuring three larger and more interesting issues.

First, supposing President Mitterrand wins – and the polls have been promising him victory for months – what will be the implications for the government of France, with a left-wing President facing a centre-right majority in parliament? In Tuesday night's television interview, Mr Mitterrand did his best to play down any sense that there could be a constitutional difficulty, but the dilemma is more complex than he admitted.

The second issue is more difficult to forecast. Two thirds of the French electorate have apparently been finding the campaign boring so far and the proportion has risen in the past month. Moreover, a significant proportion of the electorate seems not to care passionately either way who is elected on May 8, and a substantial minority remains undecided.

In that case, what is the election about? The right is representing it as a struggle between liberty and socialism, but the indications of boredom, indifference and indecision among the electorate suggest that this particular line of attack has been missing the mark.

The Socialist Party has come a long way from the sadness and setbacks of its attempt to reform society and build socialism in one country in 1981-82. Today its programme is impregnated with prudence and pragmatism – an approximation to a modern social democratic party. It is doubtful whether François Mitterrand himself has ever missed socialism.

By contrast, it is the parties of the right which, under the influence of Reaganism and the Thatcher factor, have taken their stand on the ideological grounds of deregulation and market forces. These are doctrines which, if not revolutionary in other parts of the world, are certainly untraditional to any French audience.

President Mitterrand's opening gambit on television on Tuesday night, that he is standing again in order to unify France and build a civil peace above party and faction, was a move against the greedy and intolerant, may or may not prove a winning line. But if the election becomes a battle to see who can occupy the middle ground, the task may prove easier for Mr Mitterrand than for either of his right-wing opponents.

The third issue is one which has been lurking in the background ever since 1981, but which will move starkly to the centre of political debate if Mr Mitterrand wins a second seven-year term: what is wrong with France's right-wing parties, and why can they not get their act together? The *Fédération Républicaine* was created in 1978, and for 23 years he and his successors ruled the roost. The trouble is that they ruled with declining plausibility and declining coherence, and today the parties of the right are deeply divided.

After the lamentable setbacks which beset the *Secours Républicain* in its early years, the right succeeded in returning to power in 1986. But its victory was not much of a vindication, with a narrow majority in parliament and the ominous shadow of a 10 per cent extremist National Front vote looms in the background. The right has managed to carry out much of its programme, including income tax cuts, deregulation and the privatisation of many of the companies nationalised by the Socialists five years earlier. But if Mr Mitterrand nevertheless succeeds in recapturing the Elysée Palace, it will be a damaging verdict on the right's record, reputation, cohesion and leadership.

Anything could happen, now that Mr Mitterrand has formally joined the fray.



The rivals: Raymond Barre, François Mitterrand, Jacques Chirac and Jean-Marie Le Pen

An uphill struggle for the right

On the surface, a Mitterrand victory ought to be surprising because left-wing presidential candidates can count on only about 25 per cent of the voters' support, while right-wing ones command roughly 55 per cent. But the explanation for the expected Mitterrand victory is that the right is not only divided three ways, including the extreme right-wing challenge from Jean-Marie Le Pen of the National Front, but is also deeply split emotionally, and so cannot be counted on to unite in a final run-off.

A quarter of Mr Chirac's supporters will refuse to switch to Mr Barre in the second round, preferring to vote for Mr Mitterrand, and vice versa. Half of Mr Le Pen's supporters will refuse to vote for either of the other two right-wing candidates. Short of some dramatic shift of fortune, it is these divisions which could carry Mr Mitterrand back to the Elysée.

Mr Mitterrand has given the clearest hint that he would be coming out as a moderate and unifier, renouncing dogmatic ideology and attacking the excesses of the right. Unmistakably, he intends to concentrate his main attacks on Mr Chirac's RPR party, widely accused on the left (and even in the centre) of using the privatisation programme to feather its own nest. It will be all the easier for Mr Mitterrand to seek a middle-of-the-road posture because his Socialist Party's programme represents a large shift towards the middle ground.

On the other hand, the main difficulty for Mr Mitterrand is that he will be all the easier for Mr Mitterrand to seek a middle-of-the-road posture because his Socialist Party's programme represents a large shift towards the middle ground. The right-wing parties advocate the continuation of a single European market in 1992. So does Mr Mitterrand. Does the right advocate a stronger European defence? So does Mr Mitterrand. Does the right claim loyalty to the institutions inherited from General

de Gaulle? So does Mr Mitterrand. Of course, differences remain between the Socialist Party and its right-wing opponents, but these are much less than they were.

For the right-wing contenders, the outlook is doubly difficult. The first problem, as Mr Chirac has publicly admitted, is that there are virtually no policy differences between him and Mr Barre.

The second difficulty for the right is more fundamental. The neo-Gaullist RPR is the largest party on the right and the most disciplined; but it is not large enough to impose its will on the rest of the right and for the past 15 years it has not even been as large as the Socialist Party in terms of popular following. According to the mythology of Gaullism, the President should be above party politics. That was certainly how De Gaulle played the hand and that is how Raymond Barre is playing it, since he has ostentatiously sought to place himself above the murky party machinations. But the lesson of history may suggest that, for any lesser figure than De Gaulle, access to the presidency may go hand in hand with mastery of a large and disciplined party.

François Mitterrand and Jacques Chirac both realised this a long time ago; but Mr Mitterrand was quicker and more successful in putting the theory into practice: by taking control of the Socialist Party in 1971, by co-opting the Communists into a common front and, finally, by marshalling them in a powerful coalition which forced them first to submit and then to quit.

Mr Chirac took control of the Gaullist movement in 1974, shortly after becoming Prime Minister under President Giscard d'Estaing, and he has

retained control ever since. Until now, however, his role has been more that of a spoiler than a winner, because his party has failed to gather enough support to dominate the centre-right ground. The right and centre parties have refused to unite, and the later years of post-Gaullist rule were marked by backstabbing and treachery.

In 1974, as Minister of the Interior, Mr Chirac helped ensure the victory of Giscard d'Estaing over the leftist candidate, Jacques Chaban-Delmas, by releasing a "secret" government poll showing that Chaban-Delmas could not win; and, in 1981, he helped ensure Mr Mitterrand's victory by ostentatiously refusing to endorse Giscard's re-election. But the current trend of the opinion polls, which show him climbing steadily past Mr Barre, seem to point to the advantages of electioneering with a large and wealthy party machine.

Mr Charles Pasqua, current Minister of the Interior, has tried to repeat Mr Chirac's 1974 exploit in reverse, claiming that a secret government poll promises Mr Chirac the victory. But the commercial polling organisations have greeted the Pasqua claim with frank disbelief and, in practice, even the Gaullists seem to expect a Mitterrand victory. That is no doubt why Mr Edouard Balladur, the Finance Minister, recently set the cat among the pigeons by proposing that, after the elections, the RPR should form a confederation with (that is, take control of) the centrist parties in the UDP umbrella organisation.

The implication of Mr Balladur's proposal, and of much of the Gaullist language, is that they are already starting to think about what to do after a Mitterrand victory. Mr Chirac has ruled out a continuation of the pattern of the past two years, in which his right-wing government has "cohabited" with the left-wing President; and Mr Barre has been against cohabitation from the beginning. But if Mr Mitterrand is re-elected, it is he who will have the legitimacy of a renewed mandate, and the choice in deciding whether to seek a centre-left government or to dissolve the National Assembly.

Mr Mitterrand affects total serenity on this score. If he is elected, he will appoint a Prime Minister who reflects the new "presidential majority." If the National Assembly prevents the Government from governing, then there will be new general elections. In other words, President Mitterrand, like Jacques Chirac, is shying to take over enough of the centre parties to shore up his position. The difference is that the Balladur proposals sound like a threatening takeover bid, whereas Mr Mitterrand obviously aims to be seductive.

Whatever the outcome, the Gaullist party is faced with two awkward questions. Why, despite the historical charisma of General de Gaulle, has it failed to encompass a larger share of the centre-right vote; and why, despite its strong law-and-order platform, has it failed to prevent the establishment of a substantial extremist National Front party to its right?

The tables accompanying the article on the EC and ERM which appeared on this page yesterday contained a number of errors. Correct figures appear below.

EC	GDP '86 (US\$bn)	EFTA (US\$bn)	GDP '86 (US\$bn)
Belgium	115	Austria	74
Denmark	79	Finland	90
France	272	Germany	44
Greece	39	Norway	69
Ireland	22	Switzerland	131
Italy	600	Switzerland	142
Lux'bg	6	Total	510
N'lands	175		
Portugal	25	Total EC	
Spain	227	Imports	
UK	554	from EFTA	80
W.Germ.	897	Total EC	
Total	3,465	Exports	
GDP		to EFTA	89

Source: International Financial Statistics and Eurostat

Kaufman's last Comments

Henry Kaufman, one of the great Wall Street gurus of all time, has written his last contribution to *Salomon Brothers' Comments on Credit*.

He recalls that it was originally an internal memorandum. It first appeared in March 1982 and was only two paragraphs long. The sales people soon started sending the weekly analysis to clients. Then *Comments on Credit* was established with a formal mailing list.

Kaufman concentrated on the first page, which he saw as a forum for evaluating monetary policy or market conditions. Periodically, he says modestly, he would use it to release new interest rates forecasts or assessments that would have a bearing on the direction of interest rates over the near term. At times the effect could be dramatic. There were also diversions. Readers were once asked to suggest a synonym for disintermediation. Among the proposals were circumlocution, demodulation, anticircumlocution and unbanking. So disintermediation lives on.

Kaufman is leaving *Salomon* at the end of this month and will set up his new firm called Henry Kaufman & Co Inc at the end of April. He will be managing funds, doing some consultancy work and will undertake some public speaking engagements.

It is his writing and analysis that will be missed. As he says in his valedictory, he tried to tell it like it is.

Enough is enough

Are we alone in believing that François Mitterrand may well fail to be re-elected President of France, having delayed the announcement of his decision to stand for so long?

Forget the opinion polls about the first ballot on April 24 which show Mitterrand with a clear lead over his rivals. The only poll that matters is the second ballot on May 8 between the two front

runners in the first. The fact that Mitterrand is already 71 and is running for another seven years should count against him. One of the best things he could do in the campaign would be to declare that he will finally seek to change the seven year rule, which was introduced under de Gaulle when France wanted a damocles sword over its head and a debilitating effect on French politics almost ever since.

Bridging the sexes

Baroness Platt of Writtle, chairman of the Equal Opportunities Commission, was expounding her views this week on the mental attributes of women, which she argued were the same as those of men.

Women only do what have been seen as "women's things" because of social conditioning and upbringing, she says. There is no such thing as a woman's mind as opposed to a man's mind. Differences are purely due to environmental conditions, she contends.

The Baroness was speaking at an Institute of Mechanical Engineers dinner to welcome its second woman honorary fellow, Nancy Fitzroy, president of the American Society of Mechanical Engineers. Platt was its first.

The dinner, slotted between the Centenary Lecture on Thin Shell Structures and last night's lecture on The Growing Pains of Ceramics Processing, was less concerned with engineering and more concerned with a woman's role in what has been traditionally a man's world.

Debate became heated at times. Platt had to correct one of the male guests who inadvertently referred to an engineer in general as "he". Career women had special problems, she argued. "I've never met a single career woman who didn't want a wife," she said.

OBSERVER

Equality is a way of life with the Baroness who puts her "environmentalist" beliefs into practice. She has three granddaughters and one grandson and all will be receiving the same birthday present – a bridge-building outfit and a model aeroplane.

Stars in Japan

Midick Jagger, Britain's middle-aged rock star, is collecting about \$5m this week for giving a few concerts around Japan, which has become the most lucrative venue on the circuit for the performing elite. This is less than Michael Jackson earned earlier this year, but certainly more than Jagger could command at home.

So far, Jagger has not appeared in any commercials, unlike Paul Newman advertising a credit card, but Suntory is a main sponsor of this week's concert series. Suntory said: "Mr Jagger's character matches that of our new beer, Suntory Dry. His appearance in Japan is especially making, so this should help accelerate the sales of Dry beer."

House no mansion

The Lord Mayor of London will have to live with the old decorations in the Mansion House for a little longer as the Roman amphitheatre dig next to the Guildhall gathers pace.

The development proposed for the site would have housed temporary living quarters for his Lordship to allow redecoration of the Mansion House, but the plans are now back on the drawing board. Everything is holding for the dig.

The Museum of London archaeologists are working to a mid-April deadline at present, though according to the Corporation of

London which owns the site their "licence to dig" is open-ended. Discussions between planners and archaeologists are still going on.

In the meantime, English Heritage has sent confidential recommendations to Nicholas Ridley, the Environment Secretary, and Brian Hobbie, Chief Urban Archaeologist for the City of London, has submitted a list of eight options, the idea of some sort of interpretative display on the lines of the Jorvik Centre in York featuring underground.

The dig itself has uncovered some interesting timbers in the area from what may have been a pre-Roman amphitheatre although the archaeologists have not decided what the timbers are.

Messalina's ways

A curious new group has been set up in Oxford called Tories against Hybris in High Places (TAHP). Hybris is, we assume, a particularly precious form of the word "hubris". The group disseminates riddles. One of them runs: "Why do the backbenches of the House of Commons today resemble the streets of ancient Rome during the Principate of the Emperor Claudius (41-54 AD)?"

The answer is: "Because the former and the latter were crowded with east-off Senators for whose services the most notorious lady of the time had no further use."

For more interesting, however, is the proffered hint: "For You-know-who's recent consumption of Ministers see Hamlet's passage; for Messalina's very different appetite, see *Pliny the Younger, Natural History, Book X, 172*."

We looked up *Pliny*. Messalina was Claudius Caesar's consort. The story about her cannot be repeated here – even in Latin. Besides, the precise meaning is obscure, both in the original and in the translation offered by the Loeb Classical Library.

Copies of the riddles may be obtained by sending a stamped, addressed envelope to TAHP, 94, Edwin Court, Binsey Lane, Oxford.

NEW SERVICES TO LONDON CITY AIRPORT FROM PARIS, BRUSSELS AND AMSTERDAM.

FROM PARIS (C.D.G.)		TO PARIS (C.D.G.)	
Monday to Friday Departures		Monday to Friday London Departures	
0730	1500	0700	1500
0800	1600	0815	1600
1000	1800	0900	1700
1100	1845	1100	1815
1200	2000	1200	1900
1400		1300	1930

FROM BRUSSELS (MAT)		TO BRUSSELS (MAT)	
Monday to Friday Departures		Monday to Friday London Departures	
0825	1250	1015	1530
	1805		1845

FROM AMSTERDAM (Schiphol)*		TO AMSTERDAM (Schiphol)*	
Monday to Friday Departures		Monday to Friday London Departures	
0800	1130	0845	1445
	1730		1930

*FROM REARONWARDS

For bookings and details of weekend flights call: Air France & Brymon (Paris) (1) 4535-6161

London City Airways (Paris) (1) 4862-1382

Sabena & London City Airways

(Brussels) (02) 511-9030

For full details and a pocket sized schedule call: London City Airport (London) 01-474 5555

LONDON CITY AIRPORT
 A MOWLEM ENTERPRISE

INTERNATIONAL APPOINTMENTS

NYSE board of directors designates president

THE BOARD of directors of the New York Stock Exchange has designated Mr Richard A. Grasso as the next president and chief operating officer, and a member of the board.

Mr Grasso, 41, will be formally elected at the board's June 2 meeting. In this new role, he will report to Mr John J. Phelan Jr, NYSE chairman and chief executive officer. Mr Grasso is currently NYSE executive vice-president, capital markets, and a member of the Exchange's management committee.

He will succeed Mr Robert J. Birnbaum, who has been president and chief operating officer at the NYSE since 1985 and will remain in office until the end of May when his contract expires. Having served for eight years prior to 1985 in the same posts at the American Stock Exchange (Amex), Mr Birnbaum said that

he is now interested in pursuing other interests and opportunities. He expects to join the boards of several corporations, and is discussing an association with a major law firm.

Mr Phelan said: "Bob Birnbaum has been a valuable asset to the New York Stock Exchange during one of the most turbulent periods in its history. His many years of experience in operations and extensive knowledge of securities industry issues contributed significantly to the NYSE's ability to operate smoothly and efficiently during the October market crisis."

Before joining the Amex in 1987, Mr Birnbaum had been branch chief of regulation and inspection with the Washington, D.C., office of the Securities and Exchange Commission. At the SEC, he also served as attorney

on the staff of the special study on securities markets.

In June, Mr Grasso will assume responsibility for the operation of the NYSE's seven lines of business - equities, bonds, options, futures, market data, regulation and automation services.

He will oversee operations of the New York Futures Exchange, and remain a director of the Securities Industry Automation Corporation, a joint venture owned two-thirds by the NYSE and one-third by the Amex.

During 20 years with the NYSE, Mr Grasso was promoted to various executive posts before being made executive vice-president, capital markets in 1986.

Mr Grasso has a wealth of experience in the securities industry, and a first-hand working knowledge of all aspects of our operations," Mr Phelan said. "He has been instrumental in the development and implementation of the NYSE's automated trades and communications systems. He is now responsible for the upgrade of these systems to enable the NYSE to manage volume of 600m shares a day by June this year as efficiently as it can currently process 225m."

"At this critical juncture in our history, as we move towards being able to handle peak demand of 1m shares a day, it is imperative that the president and chief operating officer of the NYSE be thoroughly familiar with these systems," he added.

Japan Air Lines to fill vacant post of chairman

TOKIO MARINE and Fire Insurance chairman Mr Fumio Watanabe has been designated for the chairmanship of Japan Air Lines (JAL), the national flag carrier, a JAL spokesman said, filling a post that has been vacant since March 31 last year, reports Reuters.

Mr Watanabe's appointment is expected to be approved at a JAL general meeting of shareholders in June, at which time he will resign his position as chairman of Tokio Marine and Fire, the spokesman added.

Mr Junji Ito, JAL's previous chairman, resigned last March after some of his attempts to restructure the company to prepare for full privatisation met with opposition from within JAL, parts of Japan's ruling Liberal Democratic Party and the Ministry of Transport, JAL sources said.

On last November 18, legislation rescinding the Japan Air Lines Law, which had given the Japanese Government considerable control over the company, became effective. On December 17, the Government sold its 34.5 per cent holding in JAL, making it a fully private company.

Leadership changes at Litton Industries

CHANGES in the leadership of Litton Industries, a technology-based US company providing advanced electronic and defence systems, industrial automation systems and geophysical services to world markets, are planned for the end of this month.

Mr Fred W. O'Green, 66, intends to announce his retirement as chairman at the company's regular board meeting on March 31, but will continue as a member of the board of directors and of its executive committee.

Also at the meeting, the board plans to elect Mr Orion L. Hoch as chairman; Mr Roland O. Peterson as president, chief operating officer and a director; and Mr Joseph T. Casey as vice-chairman, a new position, and chief financial officer.

Mr Hoch, 59, is currently president and chief executive officer, and will retain the latter responsibility. Mr Peterson, 56, is a Litton senior vice-president, while Mr Casey, 56, is an executive vice-president and chief financial officer. Both Mr Hoch and Mr Casey are members of the board's executive committee.

Mr O'Green has been chairman since 1981, and was chief executive from 1981 to 1986. He joined Litton in 1962 and held various executive posts before being elected president and chief operating officer in 1972.

Mr Hoch began his Litton career in 1967, and by 1973 had climbed to the post of deputy head of its business systems and

equipment group. He left the company in 1974 to take a presidential post elsewhere, but returned to Litton in 1983 as president, chief operating officer and a director.

Mr Peterson has been group executive for Litton's components and industrial products group for the past two years. He joined Litton in 1960 as a project engineer. He had risen to a corporate senior vice-president by 1982, and he became group executive of the navigation, guidance and control systems group from 1983 to 1986.

Mr Casey joined Litton as corporate controller in 1983. He has been chief financial officer since 1987 and executive vice-president since 1978. He was elected to the board in 1981.

*** FIRST CHICAGO, parent of First National Bank of Chicago, the 11th-largest US bank, has reshuffled executive responsibilities at its Global Corporate Bank unit following the resignation of Mr William Moeller, former head of the unit's North American Banking Group.

Mr Leo Mullin is the replacement for Mr Moeller, who has left after seven years with First Chicago to join Southeast Bank, in Florida.

Mr Alan Delp, after heading the Global Corporate Bank's Asia/Pacific division, has been named as successor to Mr Mullin as chief of the International Banking Group sector.

FINANCIAL ACCOUNTANT TO £30K

OPPORTUNITY IN INTERNATIONAL BANKING

The opening of a full international banking branch in the City only three weeks ago, has strengthened the strong links between the business and banking communities of the UK and Norway.

We now need additional members for our small, dedicated London-based team. The first will be an articulate and ambitious young graduate chartered accountant, with 3+ years' post-qualification experience to assume day-to-day management responsibility for the Accounts Department, with tasks ranging from statutory reporting, loans administration and financial accounting to monitoring position limits.

This role offers good prospects for personal and professional development in pace with the expansion of the branch, the challenge of being part of a major business initiative from the very beginning, and the opportunity to work in an environment where individual initiative is both encouraged - and well rewarded.

Remuneration will include a starting salary of up to £30k, together with the full range of benefits you would expect from a full-service international bank that is the central clearing bank for Norway's savings banks with access to a large retail base. This will include a company car, BUPA, subsidised mortgage and non-contributory pension scheme. To arrange an interview please write in the first instance, with full CV, to John Coxon, Financial Controller, Union Bank of Norway, 20 St Swithin's Lane, London EC4N 8AD.

Union Bank of Norway

Accountancy Appointments

GROUP FINANCIAL CONTROLLER

Midlands c.£35,000 plus car

Our client, a major plc, controls a group of companies in the UK, Europe and North America producing and manufacturing a range of products associated with the construction and allied industries. It is expanding steadily and profitably, with largely autonomous subsidiaries operating under the control of a small head office.

The Group Finance Director wishes to recruit a Financial Controller who will have day-to-day operational control of the central finance function. This unit co-ordinates, consolidates, reviews and controls the quality and timeliness of

financial reporting worldwide, handles tax matters and acts as coordinator of group funding. Systems are computerised and there is a small staff.

Candidates must be mature qualified accountants, preferably graduate chartered, with experience of operating at the centre of a diverse, widespread group. This is a challenging role, requiring the ability to achieve results and the potential to develop with the group. The post offers a good range of corporate benefits.

Please write in confidence with full career and salary details, quoting reference S7927 to John W. Hills.

KPMG

Peat Marwick McLintock

Executive Selection and Search
9 Creed Lane, London, EC4V 5BR

GROUP CHIEF ACCOUNTANT

Merchanting/Wholesaling Background

S.E. Coast £27,000-£35,000+attractive benefits

The UK's growing reputation for highly efficient distributive companies is typified by our client. It has a continually developing network of local trading units which all operate as profit centres supported by group marketing and purchasing. This operating structure sustains a long established business practice of providing a local and efficient source of supply of a very extensive product range. It has also served to generate good margins. Organic growth has been rapid over the last five years and 1988's turnover will be c.£50 million.

In this Company, the Group Chief Accountant is expected to make a significant commercial contribution; input to business planning, overseeing and planning for the group's working capital and cash flow requirements, and enabling the group to make rapid business decisions by timely presentation of management information. Other key areas will include monitoring operational

management's use of information provided and the standards of financial reporting to the group.

Your application is invited if you are a professionally qualified accountant with a breadth of commercially orientated financial management experience in medium to large merchanting/wholesaling enterprises. You should be seeking to develop your career in a company characterised by its commercial acumen, reputation for efficient customer service, strongly participative management style and firm commitment to future growth.

The remuneration package will include attractive pension arrangements, a company car and relocation assistance to the vicinity of an attractive resort on the South East Coast.

Please write in confidence with full career and salary details, quoting reference B8435/L to Mike Blackenbagen.

KPMG

Peat Marwick McLintock

Executive Selection and Search
9 Creed Lane, London EC4V 5BRDirector
Group Financial Servicesc.£40-£45,000+car
Central London

Operating within the service sector, this UK public company has an outstanding record of growth and profitability. With turnover in excess of £100 million, worldwide operations outside the UK account for nearly half its business. Growth plans continue to be ambitious and it is now necessary to strengthen and reorganise the finance function to support this growth effectively.

Reporting to the Group Finance Director, the appointment will carry responsibility for the control and

management of a sizeable department covering statutory consolidations, treasury, financial and management accounting and development of appropriate computer systems. Excellent accounting skills are required, but these must be accompanied by the right personal skills to direct and motivate the whole accounts department and to interact productively with senior management in the various operating companies.

Candidates will be qualified accountants (preferably chartered)

with extensive experience in a senior finance role.

The compensation package will include normal big company benefits and will reflect the level of this appointment.

Please send a comprehensive CV in confidence quoting reference MCS/6122 to Alannah Hunt, Executive Selection Division, Price Waterhouse Management Consultants, No. 1 London Bridge, London SE1 9QL.

Price Waterhouse

Head of
Accounting &
AdministrationInvestment Banking
City£30 - 35k • Bonus • Car
Mortgage Subsidy

Our client, the subsidiary of a major international group, operates in the field of investment banking. Specialising in the European Equities Market, the organisation is sustaining impressive growth in the U.K.

To support this expansion the company is now seeking a young, ambitious and self-motivated graduate Accountant to organise and assume responsibility for its key accounting and administrative functions.

Candidates should have 5 years' post qualifying, hands-on experience in an accounting function as well as practical experience of P.C.'s and 4GL applications. Above all, our client is looking for a strong intellect, proven numerical and analytical skills together with an innovative mind.

This role offers an outstanding opportunity of working close to the business and future career progression would be into the general management of the organisation. The culture is such that achievements will be recognised and your potential developed to its full.

Applications, in the form of detailed C.V.'s, should be sent in confidence to: John Moxed, Digby Moore Associates, Mountbatten House, Victoria Street, Windsor, Berks SL4 1RE.

DIGBY MOORE ASSOCIATES

• S E A R C H • S E L E C T I O N •

Finance
Director

East Sussex

to £35,000 + car
+ share options

Our client, a leader in the design and distribution of furnishing fabrics, has a turnover of around £22 million and is currently preparing for flotation.

The Finance Director who is now being sought will work closely with the Managing Director in preparing the company for flotation and the expansion of the business. There will also be a strong emphasis on the improvement and development of management information and the computerised systems.

Applicants, preferably aged around 35, should be Qualified Accountants with commercial experience in a distribution business. Experience of staff and computer development is essential as is some degree of general management involvement.

Please send concise details, including current salary and daytime telephone number, quoting reference C0276, to: David Fisher, Grant Thornton Management Consultants Limited, Grant Thornton House, Melton Street, Euston Square, London NW1 2EP.

Grant Thornton
Management Consultants

OFFICIAL SPONSOR OF THE 1996 BRITISH OLYMPIC TEAM

European Financial Controller

(German speaking)

London c.£35,000 + car

Major division of quoted service based group seeks a Financial Controller to assume full functional responsibility for its European operations. Salary c.£30,000 plus substantial profit related bonus. Preferred age 30-40.

Candidates will be qualified accountants with successful experience of heading up the finance function in a significant profit centre in commerce or industry. Fluent conversational German is essential, as are high technical competence and the ability to deal effectively with senior management in Western Europe.

For a full job description, please write to W T Agar at John Courtis & Partners, 104 Marylebone Lane, London W1M 5FL, demonstrating your relevance clearly and quoting 2282/FT. Both men and women may apply.

JC&P Management
Selection and
Search
London, Milton Keynes, Wilmslow

ESSEX ACCOUNTANCY APPOINTMENTS

GROUP ACCOUNTANT/FINANCIAL DIRECTOR DESIGNATE
Young dynamic Qualified Accountant, with a minimum of 3 years post qualification (commercial) experience required by fast expanding private office products group, who are 2/3 years from usm/stock exchange flotation. The successful candidate will be responsible for the group accounts department, reporting to the Financial Director. Excellent promotion due in part to the Financial Directors own ambition.

DIVISIONAL ACCOUNTANT £18,000 Neg
Finalist/Qualified Accountant experienced in producing budgets forecasts, cashflow etc required by a leading company, for new and existing projects to be assisted by a financial analyst. The right applicant will have a minimum of 4 years experience within a commercial environment, including familiarity with computers. Future prospects excellent.

ACCOUNTANT £18,000-£20,000
Age: 35-50
An experienced Accountant required to run accounts department of UK subsidiary of international company. Reporting to the Managing Director, the suitable applicant must have sound computer experience and the confidence and ability to implement and develop a new system.

ASSISTANT ACCOUNTANT £16,000
Young ambitious Accountant, currently moving towards qualification, required to report to Financial Controller in a Chemical Company. The successful applicant will be involved in all aspects of day to day operations and month end routines and will anticipate taking over from the Financial Controller, who will also be promoted in the not too distant future.

VENTHAM EMPLOYMENT LIMITED SPECIALIST IN ACCOUNTANCY

Contact:
Sandra Beale, Apsley House, Waterloo House,
Chelmsford, Essex CM1 1BD
0245 492288

Dawn Bency, Warren House, 10-20 Main Road,
Hockley, Essex SS5 4RY
0702 204303

HIGH FLYING ACCOUNTANTS

27 to 33 £High + Equity + Car
We offer the opportunity to help build a truly outstanding management consultancy. We handle Business Strategy, Acquisitions and Disposals, Corporate Finance, Financial Management, Recruitment and Data Processing assignments for major clients, from our London office. Within two years you will have acquired an equity stake and earned a directorship.

You will have to demonstrate entrepreneurial flair and are likely to be a graduate, chartered accountant. Experience as financial director or controller of a business would be ideal. Previous involvement with acquisitions and fund raising is partially relevant. Current data processing experience would be a useful bonus. Exceptional career achievement to date is more important than previous consultancy experience.

We want an achiever who is hungry for success, highly commercial, enjoys hard work, and a good communicator. The management style is entrepreneurial and demanding. A company car will be provided, and tangible results will be rewarded exceptionally well.

Please write to convince me that we should meet, enclosing a CV and making sure you state your current salary and a daytime telephone number:
Barrie Pearson, Managing Director, Acree House,
61/76 Lons Lane London WC2E

**LIVINGSTONE FISHER
ASSOCIATES LIMITED**
MANAGEMENT CONSULTANTS

JOHN SWIRE & SONS LIMITED

CORPORATE TAX

This major international Group is seeking a tax orientated accountant for this varied and interesting appointment at its Head Office, which is relocating to the Victoria area in June.

The successful applicant will need to have some tax experience and the character, ability and perception to fit in effectively with a small head office team. Primarily a U.K. role, but with some exposure to the Group's international operations, the responsibilities cover with ad hoc projects, which could require some travel.

A competitive salary, commensurate with age and experience, plus a car is offered. The Company operates a subsidised mortgage scheme, a bonus scheme and provides excellent pension benefits.

Write in confidence to:-

J.C. Brodie, Personnel Manager, John Swire & Sons Ltd,
Regis House, 43-46, King William Street, London EC4R 9BE

CORPORATE RECOVERY INSOLVENCY SPECIALISTS

COOL LOGIC



How did a carrot, two lumps of coal and a puddle of water make their way into the centre of a grassy field?

Of course, the real question is, how do you approach problems of logic? At Peat Marwick McLintock the right answer is with lateral thinking, an inquisitive nature and cool logic. Because that's exactly what you'll need as a member of our Corporate Recovery practice. As the UK's largest firm of professional accountants, we're expanding our share of this specialist market.

Which means we're looking for bright individuals at all levels to form new teams working alongside our existing professionals.

Unlike many other large firms we work in small teams - providing a stimulating environment where individual talent is recognized, encouraged and rewarded. Whilst our size provides the widest variety of interesting assignments plus the scope for real development.

So, whatever your depth of experience - come and explore the prospects with us by writing with full cv. to Tony McMahon, Peat Marwick McLintock, 1 Puddle Dock, Blackfriars, London EC4V 3PD.
Tel: 01-236 8000.

KPMG Peat Marwick McLintock

FINANCE DIRECTOR

For Newly Acquired Subsidiary

28-35 Rural Oxfordshire

Min. £40,000 package + car

Over recent years our client has become a high profile plc which, through a bold acquisition policy and internally managed growth, has achieved an ongoing turnover of over £300 million - with corresponding profits. It has also established an enviable reputation by its innovative style of management and its positive marketing strategy.

The group is currently completing the acquisition of a business of high potential that already has a turnover approaching £40m, operating from several manufacturing locations and headquartered in rural Oxfordshire. It has an easily identifiable product range which is targeted principally at the domestic market place and sold through the High Street.

However, with strong financial controls and a greater marketing input, the business could be developed substantially. It is within this environment that an opportunity has arisen for a high calibre Financial professional to come in at the start of the next vital stage of the company's history. This will enable you to stamp your authority, personality and expertise on an enterprise with exciting potential for escalating profitability and professionalism.

You will be required to reappraise comprehensively the financial and commercial disciplines, implementing sophisticated controls and setting ambitious new standards of performance. You will almost certainly need to strengthen your department with quality personnel. Working with the Managing Director, you will be a major contributor to the executive team, providing fresh input to day-to-day management, strategic planning and the long-term development of business.

You will be a talented, energetic, graduate qualified accountant, with a successful track record in industry or the profession. You will have excellent interpersonal skills, an assured manner and commercial flair.

The rewards are planned to match the considerable challenge of this position, while opportunities for further advancement are excellent. Relocation expenses will be paid where necessary.

Please contact Dudley Harrop or Laurence Barnett at our Manchester office quoting ref. M856

ASB
ASB RECRUITMENT LTD

Eagle Buildings, 64 Cross Street,
Manchester M2 4JQ Tel: 061-834 0618

Trident House, 31-33 Dale Street,
Liverpool L2 2HF Tel: 051-236 9373



Financial Director

North Manchester c.£25,000 + Car

Our client a subsidiary of a major PLC is seeking a pro-active Finance Director, with strong commercial awareness to assume full financial responsibility for 4 operating units (t/o £17m) involved in the design and manufacture of a wide range of electrical and electronic products and components.

Reporting to the Managing Director the position requires a qualified accountant with a minimum of 5 years post qualification experience, gained within an affiliated industry.

Possessing excellent communication and man management skills combined with a broad based accounting background, and a proven track record in systems implementation and development, you will be an innovative professional ready to take the challenge offered by this highly demanding and diverse role.

Together with an attractive remuneration package our client offers outstanding opportunities at divisional and group level to an ambitious and highly motivated individual.

In the first instance please send a full career resume including salary and a day time telephone number to: Linda McConville, Divisional Managing Director,

Robert Armstrong & Company

Management Selection Consultants

No 1 Central Street, Manchester M2 5WR.
Telephone: 061-236 0541

▶ A member of THE BURNS-ANDERSON GROUP PLC ◀

Insurance Business Analyst

c.£23,000
+ Mortgage Assistance

This is an opportunity for a recently qualified accountant with some experience of insurance to join the financial management team of the Insurance & Funds Management businesses of a large broadly based Financial Services Group.

The Business Analyst has an interesting and challenging role which includes responsibility for the review and analysis of strategic plans, financial plans and budgets; monitoring and review of actual performance; analysis, control and review of capital projects; preparation of the relevant board papers and major ad hoc financial projects. There will be regular work in and close involvement with the insurance businesses and top level financial management at Headquarters. There are very good prospects of promotion throughout the Group.

Applicants should be young qualified accountants aged early to mid 20s, with the ambition to pursue a career in the financial services sector. Experience of the insurance sector through audit or direct employment is required.

Location - City.
Please reply in confidence quoting Ref: I 359 to:

Brian H Mason,
Mason & Nurse Associates,
1 Lancaster Place,
Strand,
London WC2E 7EB.
Tel: 01-240 7805

**Mason
& Nurse**
Selection & Search

20 Accountancy Personnel

Placing Accountants First

ENSERCH International Audit

For further details, please contact:
Accountancy Personnel,
20 Staines Road,
London W1M 1LA
Tel: 01 535 1483

NEWLY-QUALIFIED ACCOUNTANT

London SW1 Very Generous Salary and Package.
Outstanding opportunity is offered by a major international energy group. The company's interests include oil and gas distribution, exploration, engineering and construction, with current turnover at \$2.7 billion.
You will initially report to the Departmental Director, reviewing and reporting on international operations and business activities. The group can also offer opportunities to work in the USA, including the Head Office in Dallas, Texas.
You should be a graduate, qualified Chartered Accountant, ideally with a working knowledge of European languages, and with strong technical and interpersonal skills. Excellent prospects are envisaged and a generous package includes 24 days holiday, fully-expensed travel, pension, BUPA and Life Assurance. Salary is substantial. Ref: C9861



For further details, please contact:
Accountancy Personnel,
20 Staines Road,
London W1M 1LA
Tel: 01 535 1483

FINANCIAL CONTROLLER

South Herts. c.£25,000 + Car + Bonus +

Our client, the UK subsidiary of a multi-national pharmaceutical organisation, currently seeks an accomplished accountant (probably in his/her 30's) with considerable experience gained in commercial industry.

Primary duties will include the control of all financial and planning functions, with responsibility for a staff of 12. Reporting to the Managing Director, the successful applicant will be a member of the Policy Group, have strong systems development skills, some previous exposure to acquisition work and strategic planning as well as working knowledge of UK Corporation Tax procedures.

Outstanding benefits package.

Tudor Grange Properties PLC

W1 c.£24,000 + Benefits

Recently established, this property development company has four major projects at development stage plus plans for 3,000 residential units over the next three years.

Currently seeking a Group Accountant, responsibilities include management and statutory accounts, supervision of staff and general administration of the accounts department.

This progressive role with immense potential for a Qualified Accountant, is suitable only for applicants welcoming a golden opportunity to join this young forward moving company whose present success ensures growth and expansion. Ref: SHK6

For further details, please contact:
Accountancy Personnel,
43 Brompton Road,
Knightsbridge SW3 1DE
Tel: 01 581 5022



For further details, please contact:
Accountancy Personnel,
43 Brompton Road,
Knightsbridge SW3 1DE
Tel: 01 581 5022

COMPANY ACCOUNTANT

Central London £22,000 + Car + Benefits

This fast growing computer leasing subsidiary of a major British Bank seeks a young recently qualified accountant for its Head Office.

Responsibilities - Supervision of accounts department of seven, control of multi-computer based accounting system, preparation of monthly management accounts, annual accounts and group returns, with involvement in a number of administrative areas.

The successful candidate must be able to contribute to the efficient management and further development of the accounting function and to communicate effectively at all levels. Ref: KPCEC

Directing our success

Finance Director - £30,000 to £35,000 + Executive Car

This young and innovative company provides a credit card facility for customers of one of the largest retail groups in the industry - comprising a range of well known high street stores.

As part of the policy making team, you'll need the business acumen to make a major contribution to the future direction of the company. Commercially minded, highly credible and with excellent resource management skills, you will be at the head of Finance, Treasury and a large banking and voucher processing function.

Co-ordinating the production of detailed MIS, annual business plans and forecasts and other financial planning proposals, you'll need to be adept at controlling a process of on-going change, development and financial innovation, since your function has a dynamic influence on the commercial policies of the company. You must be PC literate, preferably with a background in banking, financial services or possibly a retail environment.

In addition to your salary and car, you will be offered an attractive benefits package appropriate to this level of appointment.

Please write with full CV to:

Tracey Collinge,
Juniper Wolf & Partners Limited,
22 New Concordia Wharf, Mill Street,
London SE1 2BB.



SEARCH & SELECTION RECRUITMENT ADVERTISING

FINANCE DIRECTOR

North West England c. £28,000 plus car, plus bonus

Our client, an American owned engineering company, is a leader in its field with a high, worldwide reputation and considerable growth potential.

The finance director will report to both the UK managing director and the American parent on all financial performance matters and will be extensively involved with the board in general business development projects.

Preferred applicants will be qualified accountants who have held senior financial control positions within manufacturing industry. Prior experience of working for an American owned company will be beneficial as will extensive experience of developing an already highly computerised operation. It will be essential for the successful applicant to live in or relocate, with assistance, to the north west.

In the first instance, please send brief personal and career details, in confidence, to Douglas G Mison quoting reference F/208/M.

Ernst & Whinney
Executive Recruitment Services
Becket House, 1 Lambeth Palace Road, London SE1 7BU

FINANCIAL CONTROLLER LONDON NW SALARY £18k neg.

The company is a member of a fast growing quoted group of companies engaged in business publishing, conferences, and communications, with a turnover of over £30 million.

Working closely with the Managing Director the Financial Controller will not have a number crunching role, but will be responsible for all aspects of financial control, participating in the management of the business, playing a full part in the senior executive team.

In particular the responsibilities will include:

financial management; commercial perspective, financial investigation and budgetary control, and responsibility for accounting requirements under the FSA.

Candidates should be recently qualified in a recognised accounting qualification, and preferable with experience in publishing and/or mail order.

If you believe you have the experience and drive required for this position please send your curriculum vitae, including your day time telephone number to:

Rosemary Grant, IBC Ltd,
56 Holborn Viaduct, London EC1A 2EX



RIYAD BANK

HEAD OFFICE - SAUDI ARABIA

COMPUTER INSPECTOR

The Riyad Bank, a leading Saudi Arabian Bank with a domestic network of 149 branches, is in the process of implementing new and sophisticated computer applications.

Distributed processing using local area networks of IBM PCs, linked via an SNA network to IBM 3090s running under MVS/XA, together with the extensive use of DB2, provides the technical environment into which we will be looking to recruit a Computer Inspector to augment our existing team. Operating within the Bank's Inspection Department, the successful candidate can expect to undertake a variety of projects ranging from the review of application developments and production systems through to detailed technical reviews of data centre operations and system software.

To be successful in this demanding role, candidates should have a sound technological background, preferably having spent a number of years in a systems development environment, and have a minimum of two years experience in a computer audit or a computer security role. Banking experience would be a definite advantage. A fully competitive package, including free accommodation will be offered to the candidate with suitable qualifications, experience and adaptability.

Envelopes should be marked Computer Inspector and addressed to:
The Assistant General Manager (Personnel)
Riyad Bank, Head Office P.O.Box 12093
Jeddah-21431 Saudi Arabia

CHALLENGE MATCHED BY REWARD

FINANCE MANAGER

South West London

£25K + Car + Benefits

With a turnover of £80 million, this FMCG organisation operates throughout the UK and is a subsidiary of one of Britain's foremost blue chip corporations. It has undergone substantial rejuvenation over the past 12 months and is an industry leader in its field. Due to internal promotion, they are currently seeking to appoint a dynamic Finance Manager. Reporting at senior level you will be closely involved with the Board of the company and *inter alia* be responsible for:-

■ Systems and MIS enhancement
■ Management of financial reporting
■ Including supervision of 26 staff

■ Financial analysis and strategic planning
■ Employee and organisational development

This is a high profile position within a growth-orientated, multi-faceted and progressive organisation. Accordingly, you will possess a first class track record, gained from industry or the profession, coupled with outstanding communicative skills and business acumen.

For the right candidate excellent career prospects will be available across the group as a whole. A highly competitive compensation package will comprise a salary of £25,000 and will be supported by the benefits to be expected from a major employer.

Interested applicants should send a full CV, quoting reference A115, to Sharon Hewitt or Mark Norton at Mervyn Hughes International Ltd., Management Recruitment Consultants, 63 Mansell Street, London E1 6AN. Telephone: 01-488 4114.

SPAIN

Top Spanish executive, fluent in Spanish, English, French and Italian. High social position Director Chamber of Commerce. Good knowledge and contacts with banks, industries, import-export, forwarding, distribution, etc. Seeks collaboration with first class firm speciality at Madrid and Barcelona

Write to Box 4080, Financial Times, 10 Cannon Street, London EC4P 4DY

MANAGING GROWTH

Central London

£40K neg

Our client is a relatively new fast-growing hi-tech company, with solid institutional backing, servicing a blue-chip client list world-wide. Profitable turnover is about £4M and growing. The Board now wishes to appoint its first qualified Director of Finance & Administration.

The successful candidate will be a computer-literate accountant, probably chartered and almost certainly a graduate, with overall business skills as well as a capacity for detail. Responsibility for the overall administrative management of the company is no less important than that of the financial management. Specific experience matters less than personal qualities - we seek a creative, but structured, enthusiast capable of making his or her mark in a high-powered team. Some international travel will be involved. Age probably mid-30s.

Salary negotiable around £40K, plus profit share. Car. Pension. Share option.

For further details and an application form please telephone Windsor (0753) 867175 (24 hrs) or write with full details to David Macintosh, Director - Human Resources, 31 Consultants Ltd, 8 High Street, Windsor, Berks SL4 1LD quoting ref: DM/743.

3i Consultants Ltd Human Resources



A WEALTH OF EXPERIENCE

Financial Accountant

Salary neg to £28,000 + car
North West

Girobank plc is an established UK Clearing Bank with a substantial growth record in both the corporate and personal banking markets. The bank has an annual income of £350m, total assets in the region of £1.7 billion and employs over 6,000 staff.

We are seeking to appoint a Financial Accountant to be responsible for the day to day financial accounting activities of the bank, both within its main processing centre at Bootle, Merseyside and its London based banking/treasury operation. Reporting to the Chief Accountant, major responsibilities include the production of both monthly and statutory financial accounts and Bank of England returns.

Candidates for this position will be qualified accountants (ACCA/ACA) preferably in their 30's who have gained several years experience of banking or the

financial services sector.

They will have well developed management and technical skills combined with experience of sophisticated computer based accounting systems.

Commencing salary is negotiable to £28,000; further performance related salary progression is possible. Benefits are in keeping with the importance of this position. Assistance with relocation to within reasonable daily commuting distance of the Bootle base will be provided where necessary. The position requires frequent travel to London.

Please reply in writing outlining career, salary progression and how your skills and experience match the requirements of the job to: Paul Wildes, Management Appointments Manager, Girobank plc, Bridle Road, Bootle, Merseyside, G1R 0AA. Tel: 051-966 2230.

Girobank

Fast Track Senior Management Potential HIGH PROFILE ROLE

Age 26 - 28

Central London

neg. c.£26,000+ car + excel. ben.

Our client, a well known major UK retail organisation, has achieved 12-30% growth p.a. in each of the last 10 years. This rapid, continuing and profitable growth requires positive commitment and high level commercial skills from its senior management. The finance areas are particularly involved in the overall planning, development and control of this expansion in a market subject to constant change in consumer demands. Additionally, new technology, marketing methods and quality of service and products must be promptly and effectively incorporated.

A reorganisation and internal promotions have resulted in the need for an ambitious Qualified Accountant (ACA/ACCA/CMA). The main objective of the immediate role (supported by a staff of 13, including several professional, qualified individuals) will be to enhance the provision of management information and advice. This will

necessitate a clear understanding of large company business needs and systems (external or internal audit experience is essential).

Outstanding inter-personal and communication skills, excellent commercial acumen and strong leadership qualities are likewise imperative. Finally, as this is seen as a crucial development role, you must be capable of immediate interface with Senior Management and Directors. You must also have potential for significant promotion to the former level within 15 - 20 months.

If you can respond to both the short and medium term challenge of the role, telephone Karen Wilson on 01-491 3431 (or 0895 - 633 429 in the evenings) or write to her, enclosing a CV and note of remuneration package, at FMS, 14 Cork Street, London W1X 1PF.

FMS

Search and Selection Specialists
for
Financial Management

Investment Accountant

c £25,000 + Car + Subsidised Mortgage Devon

We are a diversifying financial services group with assets in excess of £1.5 billion. Following internal reorganisation, we are seeking to appoint a Manager who will be responsible to the Investment Director for providing a high quality service covering the accounting and administration functions which support our fund management and property investment activities.

You will manage a department of 32 and be involved with forward-planning, monitoring and control of staff and systems as well as acting as professional advisor where investment accounting and administration matters are concerned.

You will be a qualified accountant, computer literate and aged 30-45 years with experience in a comparable role within the financial services or securities industries.

This is a challenging appointment and the ideal move for an ambitious and highly-motivated self-starter who is prepared to make the job their own.

Benefits include a fully-expensed car, full relocation, private health care, share ownership, concessionary mortgage and pension schemes.

Please write with full CV, showing details of current salary to Christine Killoran, Senior Personnel Officer, London and Manchester Group plc, Winslade Park, EXETER, EX5 1DS, or telephone her on (0392) 52155 for an application form.

London and Manchester Group plc

CURRENTLY AUDITIONING: AN INQUISITIVE YOUNG ACCOUNTANT TO MAKE SENSE OF MEDIA AND ENTERTAINMENT

Deloitte Haskins + Sells Media Group is a team of multi-disciplined professionals handling corporate finance, corporate and personal tax, audit and management consultancy for some of the country's leading organisations in broadcasting, cable/satellite TV, film and video production, newspaper, magazine and book publishing.

We're looking for a young graduate accountant with up to two years' post-qualification experience to join the Group as part of our growth and development. The role has four broad areas of responsibility:

- Implementing and contributing to the media group's strategy, and administering its budget.
- Supporting clients through research projects, technical advice, and liaison with corporate finance and consultancy.
- Preparing proposals and internal briefings, writing articles and other materials for internal and external publication.

● Developing - and presenting internal training courses, participating in external seminars and exhibitions.

This is a fascinating position to suit a young, enquiring mind. The right candidate will be articulate and self-motivated, have a proven ability to write and experience in public speaking. As you'd expect from one of the largest accounting and business advisory firms in the world, prospects for self-advancement are considerable.

Starting salary is negotiable around £20K plus benefits, which will reflect experience to date.

Write in the first instance to: George Eccles at Deloitte Haskins + Sells, 128 Queen Victoria Street, London EC4P 4JX

Deloitte Haskins + Sells

128 Queen Victoria Street, London EC4P 4JX

..... profitable growth in manufacturing Financial Director

Norfolk

£28,000 + Profit Share
+ Car + Relocation

Our client, an expanding subsidiary of a prestigious acquisitive Plc, is poised for continued growth in a highly profitable manufacturing sector with sales in excess of £20 million.

We are seeking a financial director to join a strong management team, who, working closely with the Managing Director will have a substantial impact on maximising profit potential, through efficient business planning and strong financial control.

The successful candidate will be: a qualified accountant, aged 28-40; who must have a commercial attitude and be a

confident, determined character, capable of implementing successful change in a manufacturing environment. A practical, 'shirt sleeves' approach will be essential, along with the ability to combine day-to-day involvement with a longer-term view.

If you are interested in this position and are prepared to commit yourself to the continued success of the company, then send your curriculum vitae and daytime telephone number to

Jon Anderson ACMA, Executive
Division, 39-41 Parker Street,
London WC2B 5LH, quoting ref. 496.

Michael Page Partnership
International Recruitment Consultants

London Bristol Windsor St Albans Leatherhead Birmingham Nottingham Manchester Leeds Glasgow & Worldwide
A member of Addison Consultancy Group PLC

Fred. Olsen Limited Chief Accountant

Ipswich

to £25,000 + fully expensed car + benefits

Fred Olsen Limited is a privately owned diverse multinational organisation. The UK office, generating £100 million turnover, is relocating their operations from Central London to Ipswich and are therefore seeking a commercially minded and dynamic individual to manage their finance function.

The UK Company has commercial responsibility for a range of businesses including cruise holidays and property development as well as their more famous activities of ship and freight management.

Reporting to a local Finance Director responsibilities will include:

- * provision of financial/commercial advice to management/Directors.
- * development of Accounting and Finance functions.
- * preparation of financial management reports.
- * Tax accounting and planning.

- * development of all EDP based financial systems.
- * management of a large professional team.

Interested applicants should be qualified, aged 28-40 and be able to demonstrate a successful track record to date, including staff responsibility, ideally within a multinational environment. Excellent interpersonal skills, computer literacy and the ability to contribute to the business will also be required.

A highly competitive benefits package is available including relocation assistance where applicable, staff travel discount and medical insurance as well as excellent career prospects. (Interviews can be held in either London or Ipswich).

For further details please contact: John Zafar on 0727 65813 or write to him at Michael Page Partnership, Centurion House, 136-142 London Road, St Albans, Herts, AL1 1SA.

Michael Page Partnership
International Recruitment Consultants

London Bristol Windsor St Albans Leatherhead Birmingham Nottingham Manchester Leeds Glasgow & Worldwide
A member of Addison Consultancy Group PLC

Corporate Treasurer

Thames Valley up to £45,000 (inc. bonus) plus car

Our clients are a £1 billion plus Group in a modern "high-tech" industry. Dominating their market sector in the UK and with a significant overseas presence they are well placed to expand through the 1990's, both by organic growth and acquisition. The Treasurer reports to the Finance Director and is expected to adopt a pro-active commercially oriented role, managing a small department responsible for all aspects of central cash management including financing subsidiaries, foreign exchange transactions, funding acquisitions/capital expenditure and assessing the treasury implications of internal reports and plans. With specialist support he or she will also have responsibility for the group tax function. Applicants must have had treasury experience at a senior level in a major international organisation and should have well-established relationships with the banking community. This experience will probably be supported by a relevant professional qualification and/or degree. Good communication and interpersonal skills are essential for the person appointed since he or she will be encouraged to make a creative contribution to the decision-making process rather than just provide a technical support service. Ref 1658/FT. Write or telephone for an application form or send full details (with a day time telephone number and current salary) to R.A. Phillips, ACIS, FCII, 2-5 Old Bond Street, London W1X 3TB. Tel no: 01-493 0156 (24 hours).

Phillips & Carpenter
Selection Consultants

Group Finance Director

Expanding Banking,
Property & Investment
Management Group

neg £45-55,000 + Car
+ Share Option

financial SELECTION SERVICES
Executive Selection Division

Our client is a vibrant financial services group based in Knightsbridge with a full Stock Exchange listing and a market capitalisation of around £30 million, actively managed by an experienced and highly-respected team of professionals.

The Company is growing both organically and by acquisition and is being developed as a broad-based investment banking group, acting as a principal and as agent, in the areas of:

- Banking and financial services (through its subsidiary, a licensed bank)
- Finance-led property activities
- Active management of strategic investments and development capital.

This appointment, reporting to the Group Managing Director, will have full responsibility for the financial management of the Group. Key tasks in this area include the continued development of tight financial reporting systems for the Group, its associates and clients. You will also participate in all management and commercial decisions affecting future growth and profitability and play a key role in the evaluation of new business opportunities.

You will be a Chartered Accountant, aged 35-45, of high technical ability, an excellent communicator and motivator, with strong business orientation, who has had both professional and commercial experience, the latter preferably in a modern and efficient group with either City connections or one which has been actively acquisitive. You will have the ambition and determination to make a major contribution to the development of this fast-growing company.

The salary package is negotiable, as indicated, including all usual benefits, not least of which is an executive share option scheme. Please write to Neil Wain, Consultants to the Company, or call him on 01-387 5400 for an initial confidential discussion. Financial Selection Services, Drayton House, Gordon Street, London WC1H 0AN.

UK TAX MANAGER

Bank of America, one of the world's largest banks, is seeking an experienced tax professional to join a small team in its London Tax Office. Responsibilities will include UK, and some European, tax planning, together with the handling of all UK tax compliance matters.

The ideal candidate will be a qualified ACA with at least four years of UK corporate experience, including a thorough knowledge of UK corporate tax procedures. Strong communication skills are essential, as the successful applicant will be responsible for advising

Bank executives on the tax-effective structuring of proposed transactions, and for dealing effectively with the tax authorities on complex issues.

Opportunities for career development are excellent and a competitive salary will be augmented by an attractive benefits package, including company car and mortgage subsidy.

Write, with full personal, career and salary details to: A. J. Tucker, UK Personnel Manager, Bank of America NT & SA, 25 Cannon Street, London EC4A 4HN.



Bank of America

Management Accountant

... looking to progress
to £24K

A major British company, part of an international group, our clients manufacture and market sophisticated electronic and electro-mechanical products with a modern factory and headquarters in London. Important technical developments in the industry have created revolutionary new products calling for fresh initiatives in marketing, manufacture and finance.

You will be Divisional Controller reporting directly to the Finance Director and liaising closely with senior line management. A wide ranging role, responsible for the production and commercial accounts of a major division of the company, you will be managing a small team and using modern computerised systems.

This is an excellent opportunity for an experienced management accountant looking for his/her next step up the ladder. You should be qualified ACMA or ACCA and be able to take on a key position within this substantial company going through a vital stage of evolution.

An attractive salary is negotiable and benefits include pension and life assurance scheme, medical insurance and assistance with relocation if necessary.

Please apply with CV quoting ref: 366/3 to Chris Williams at Charles Barker MSI, 30 Farringdon Street, London EC4A 4EA. Tel: 01-634 1143.

CHARLES BARKER
SELECTION-SEARCH-ADVERTISING

Venture and Development Capital.

Gartmore is seeking to recruit two executives to join Michael Walton in the formation of a venture capital team.

A Senior Executive

You will have worked for at least three years in the venture capital industry, and are now in a position of responsibility involving all stages of the investment process and aftercare. You are unlikely to be aged under thirty, and should be capable of becoming a key participant in the development of the business.

A Junior Executive

Probably a qualified accountant or a business graduate, with experience of investigations and company appraisals, preferably including the acquisition and disposal of small and medium sized companies.

Funds under Gartmore management already have significant involvement in unlisted investments, and Gartmore is seeking to consolidate and expand its venture capital capability.

This is an outstanding opportunity to join a small team and to help create a new force in this expanding business.

Please send full personal and career details to: Director of Personnel, Gartmore Investment Management Ltd, P.O. Box 65, 16-18 Monument Street, London EC3R 6GQ.

Gartmore

APPOINTMENTS ADVERTISING

For Further Information
Call 01-246 8000

Tessa Taylor
ext 3351

Deirdre Venables
ext 4177

Patrick Williams
ext 3694

Elizabeth Rowan
ext 3456

Paul Maraviqua
ext 4676

Business Finance Manager

To £22,000 + car

Cheshire

Our client is a major engineering company operating at the forefront of industry technology and with a turnover of £200m. There are ambitious plans for further growth and to aid this process the company has re-structured to create discrete, autonomous business units.

Reporting to the Business Manager, you will be responsible for the financial performance and commercial development of a new £20m turnover business. Initial objectives will focus on developing financial systems and controls to assist management decision making. There will be continuing involvement in both short and long term financial planning and investment analysis. In addition, you will have a major role to play in contract evaluation, pricing policy and monitoring of results.

Candidates will be qualified accountants aged 25-35. Experience will have been gained in a contract or project engineering environment with significant exposure to manufacturing control systems. In this new post, you will be working in a dynamic environment and you must be able to manage change effectively. You will possess confidence in your own abilities, enthusiasm and a desire to use this experience for further career progression.

Please reply in confidence, giving concise career, personal and salary details to: Brendan Keenan, Ref ERS989 Arthur Young Corporate Resourcing, Ordeal House, 5-11 Potter Lane, London EC4A 1DH



Arthur Young Corporate Resourcing

A MEMBER OF ARTHUR YOUNG INTERNATIONAL

FINANCE DIRECTOR

£24,000 + Car
South

The subsidiary of an aggressive and acquisitive quoted group, this small hi-tech company has a remarkable record of growth. The development of overseas markets has created excellent opportunities for the unit, and has led to a requirement for a full-time Finance Director. Taking overall control of the finance function with 4 staff, the role controls group reporting, management accounting, forecasting, budgeting, cashflow control and systems development. Input to strategic issues will be an integral part of the position, working closely with the Managing Director to determine the commercial direction of the company.

An excellent opportunity for a qualified Accountant, 25-35, with a "hands-on" approach.

CHIEF ACCOUNTANT

£24,000 + Car
South

As part of its expansion planning one of the world's major multinationals require a Chief Accountant for a £50m turnover electronics division based in Suffolk.

Reporting to the Divisional Financial Controller the position carries responsibility for all financial and management accounting, the development of financial systems and participation in the planning process.

Candidates will be qualified Accountants (28-34) who have gained a wide range of experience within a manufacturing environment and who have had significant exposure to mainframe and micro computers.

Initial enquiries to Joan Coulter at Robert Hall, Freeport, Walter House, Bedford Street, 418 The Strand, London WC2R 0BR. Telephone: 01-336 3545.

Financial Recruitment Specialists
London - Birmingham - Windsor - Manchester

CHIEF ACCOUNTANT/ FINANCE DIRECTOR DESIGNATE

This fast expanding aviation company, located near Stansted, is seeking a qualified accountant to head the finance function. The preferred applicant should have experience within the industry, be capable of supervising the processing of large volumes of business under time pressure and will assume executive responsibility for all financial matters. A Board appointment within twelve months is anticipated. Salary up to £27,500 + car.

Write to box A10666, Financial Times, 10 Canon Street, London EC4A 4BY

FINANCIAL CONTROLLER

Mid-thirties
£30k plus

Our client, a £20m marketing-led engineering company manufacturing and trading internationally, has doubled its turnover over the last three years through organic growth, investment in product design and quality, high levels of service to clients and dynamic management. The average age of the Senior Management team is 40.

Candidates for the position of Financial Controller will not only be professionally qualified graduates with an excellent track record in financial management, but also businessmen or women of very high calibre. Experience of the manufacture and sale of capital equipment and of engineering contracting—preferably to Comecon and Third World markets—is desirable.

Salary is negotiable plus bonus. Location is a pleasant, historic provincial city. Candidates please write, in confidence, giving details of age, experience, qualifications and present earnings, quoting Ref. 1023. Alternatively telephone John Pattison as adviser to the company on 0602 411238 (office) for a brief discussion. No information will be divulged to our client without your prior permission.

CB-Linnell Limited
7 College Street, Nottingham
MANAGEMENT SELECTION CONSULTANTS
NOTTINGHAM-LONDON

CONSIDER INFORMATION TECHNOLOGY

Qualified/PQ Accountants to £25k plus benefits

If you have ever considered switching from Accountancy into a potentially more challenging and lucrative profession—consider IT. Our client has won a worldwide reputation for financial applications software on supermini technology and their turnover continues to double annually, as it has for the past 4 years.

This innovative turnkey systems house is determined to lead in the financial technology of the 90's and has invested in a strategy which involves attracting professionals with an ability to shape and develop this dynamic organisation.

A number of opportunities have been identified including positions in Project/Account Management, Consultancy, Sales & Training. Basic salaries range from £18k to £25k plus commission and benefits.

The key requirements are that you are either qualified or part qualified with experience of implementing financial information systems.

The decision is yours.

Contact, in complete confidence our Recruiting Consultant, Susan Wright during office hours on 01-935 8474, or, send a C.V. to her office address.

FAIRBANK & FRY MANAGEMENT CONSULTANTS LIMITED
64 George Street, London W1H 5RG.

Fairbank & Fry
MANAGEMENT CONSULTANTS LIMITED

MANAGER-BUSINESS SERVICES

Reading
c£25,000 plus car

With a staff of 4,500 and over 30 offices throughout the United Kingdom, our client is one of the country's largest firms of chartered accountants and management consultants.

The provision of financial and commercial services to small businesses is one of its specialist areas, and the success of its Business Services Group in taking organisations from start-up to maturity is impressive.

In Reading, with a potential client base covering the Thames Valley, their record of achievement has made the team one of the most successful in the firm, and it's a position of strength from which you can build your own career.

The responsibilities will be considerable, covering management of the team as well as business development. This key appointment offers the chance for you to use your ACA and business acumen in the highly rewarding role of advisor to growing companies and, in doing so, widen your business and management expertise to the point at which it becomes a springboard to much greater challenges. Though probably still in your 20's, you will be an achiever for whom the transition to senior management will prove easy.

In addition to a salary in the region of £25,000, there will be an extensive range of benefits plus a company car.

For further details, please send your c.v., quoting reference CRS/521, to Jennie Pask, Lockyer Bradshaw & Wilson Limited, 39-41 Parker Street, London WC2B 5LH.

Please indicate any organisations to which your details should not be forwarded.

LBW

LOCKYER, BRADSHAW & WILSON LIMITED
A member of the Addison Consultancy Group PLC.

EDP-AUDIT MANAGER

Hertfordshire
to £30,000 + car
+ benefits

Distribution and leasing are the core business of this major British PLC, which operates internationally and currently has a T/O in excess of £1.4 billion. It has strong growth ambition and seeks to establish a predominant position in each of its markets through quality of service.

An exceptional opportunity has arisen to head-up a small established EDP-audit team. This key role requires you to plan and implement a complete EDP-audit programme for the group and this will involve reviewing a diverse range of installations based in the UK, the USA and Europe.

To be considered for this position, you will be aged 30-40, with at least 3-5 years' EDP-audit experience and an accounting or data-processing background. An element of consultancy work within the role will necessitate a proven ability to communicate your skills in both an oral and written format with all levels of management.

Interested applicants should write to the address below or telephone Lisa Pearson, Accountancy Division, quoting reference HG4710.

Telephone 0727 35116 (out of hours 0582) 404412
Management Personnel, Edipse Court, Half Moon Yard,
14b Chequer Street, St Albans, Herts AL1 3HH

 **Management Personnel**
LONDON • GUILDFORD • ST. ALBANS • WINDSOR

CHIEF FINANCIAL OFFICER

Full Functional Accountability
c£25,000 + car + profit share

Our client, part of a leading international group in the service sector, is an autonomous and expanding Company with a turnover approaching £10 million. Based in the City, future growth plans include developments in both central London and key regional centres.

In response to their growth, there is now an opportunity for an ambitious, highly motivated professional to assume full responsibility for the financial function and to play an active role in the profitable development of the Company's business.

Initial priorities will include the re-organisation of the accounting function and improvement/development of management information systems to meet the demands of a fast moving business.

The successful candidate will be a graduate chartered accountant, probably aged 26 to 35 years, with a track

record of progressive achievement ideally gained in a service-based environment. Some experience of the development of computerised systems would be of advantage.

Personal qualities will include flexibility and enthusiasm coupled with an assertive yet tactful style and the ability to develop and motivate staff. You should be able to demonstrate an understanding of overall group concepts and possess the potential for personal career development including progression to Director status.

For further information, please telephone KEITH SCOTT on 01-993 6610 or write to him, enclosing full career details and salary progression data, at SRL Executive, Challenger House, Gomersbury Lane, London W3 5LH (ref. 81053).

Royal Life

Internal Audit In Financial Services

My client is a rapidly expanding subsidiary of Royal Insurance plc and is a leading force in the financial services sector, operating throughout the world. Continued success has created exciting career prospects within the Internal Audit team.

Audit Manager Up to £28,000, Car, Benefits
Reporting to the Chief Internal Auditor, you will lead a team of 8 audit staff and be responsible for the planning, execution and quality control of audit assignments throughout the company. Aged 30-40, you will be a fully qualified Accountant with at least five years audit experience, preferably in the financial services sector, and two years management experience. Ref M19007/FT.

Senior Internal Auditors Up to £20,000, Car, Benefits
Reporting to the Audit Manager, you will be responsible for the successful completion of audit assignments within budgets and timescales. You will supervise 2-3 Internal Audit Assistants and play an important part in their future development. Aged 25-32, you will be a fully qualified Accountant with at least three years experience as an auditor. Ref M19008/FT.

Based in the North West, both positions attract an impressive range of benefits including subsidised mortgage, non-contributory pension scheme, profit share and generous relocation expenses. Most importantly, if you have the high calibre profile we are seeking, my client offers opportunities to promote your career with an expanding international company.

My client is an equal opportunities employer.

Male or female candidates should submit in confidence a comprehensive c.v. or telephone for a Personal History Form to, J. Morrison, **Hoggett Bowers plc**, St James's Court, 30 Brown Street, MANCHESTER, M2 2JP, 061-832 3500, quoting the appropriate reference.

Hoggett Bowers
Executive Search and Selection Consultants
BIRMINGHAM, BRIGHTON, CAMBRIDGE, CANBERRA, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE, NOTTINGHAM, SHEFFIELD and WINDSOR
A MEMBER OF BLUE ARROW PLC

Appointments

Advertising

Appears on

Wednesday

and

Thursday

£47 s.c.c

Premium Positions

£57 s.c.c.

Senior VAT Consultant

London
Up to £40,000
plus car

VAT consultancy is the fastest growing part of our tax practice with exciting plans for further expansion. It's big business. For the Treasury it is a £26 billion business.

We now need to strengthen our team further by the appointment of additional VAT specialists at senior consultant level.

Based in London, you will be part of an expanding team of more than 30 specialists, providing comprehensive VAT consultancy services to clients from proprietorial businesses to multinational corporations.

The VAT team is part of our international Trade Group, a unique mix of highly skilled specialists who concentrate on providing top quality tax consultancy services to international business.

You are likely to be a chartered accountant with substantial VAT experience, gained as an auditor or tax manager with a professional firm or large company. You could also be with HM Customs & Excise in Headquarters or with "999 large trader" experience particularly in the financial services sector.

You will have outstanding technical and

management skills, the ability to communicate effectively with senior executives and a strong sense of business awareness. You are unlikely to be earning less than £25,000.

The work is demanding and involves continuous client contact. It concentrates on the interpretation and practical application of VAT law over a wide range of business transactions. These assignments require sound understanding of client business objectives and corporate strategy and involve the review of complex deals across the world.

Future prospects are outstanding and the rewards are highly competitive. A good relocation package is available.

Please telephone or write to:

John R Townsend
National Tax Recruitment Manager
Price Waterhouse
Southwark Towers
32 London Bridge Street
London SE1 9BY
Tel: 01-407-9599

Price Waterhouse

Offices in: London, Aberdeen, Birmingham, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Leicester, Liverpool, Manchester, Middlesbrough, Newcastle, Nottingham, Southampton and Windsor. Associated firms in Ireland and the Channel Islands.

GROUP FINANCIAL CONTROLLER

Northamptonshire
c. £25,000, Car, Benefits

This Group has a first class product range, which is a household name in its own field. It is well established, profitable and expanding, with plans for substantial further diversification and growth.

The Group Financial Controller will be responsible for all the accounting activities of the group, and for the centralised accounting function. You will also have some challenging systems development tasks, both within and outside the finance function.

You should be a qualified accountant with broad experience at a level of substantial responsibility within industry or commerce; but above all, we need a creative, enthusiastic professional who wants to make a mark in a key position in a quality company.

Ref 3327. Male or Female Candidates should telephone for an application form or forward a CV to: CW Theaker, Sterling Search & Selection Limited, 130-134 High Street, Solihull, West Midlands, B91 3SX, Tel: 021-704 4334.

STERLING SEARCH LIMITED

SAUDI ARABIA

A leading trading company in Jeddah requires two Qualified Accountants as follows:

1. CHIEF ACCOUNTANT
2. SENIOR INTERNAL CONTROL ACCOUNTANT

These positions call for recently qualified accountants (preferably C.A.) with good experience of computerised accounting and auditing. Reporting will be to the Financial Manager. An attractive salary is offered.

The Company imports and distributes a wide range of electrical goods in the air conditioning, refrigeration and domestic appliance fields, as well as electronic consumer goods.

Applications with full CV and telephone contact number should be sent as soon as possible to:

L.M. White Consultancy,
31 Danbury Vale, Danbury, Chelmsford,
Essex, CM3 4LA.

FINANCE AND ADMINISTRATION DIRECTOR

HIGH WYCOMBE

£ EXCELLENT

Our client is a rapidly growing firm involved in the retailing of office furniture. To further the expected growth it has identified the need for this important new appointment.

The candidate will be expected to make a positive and imaginative contribution to the efficiency and profitability of the business. He or she will have responsibility for financial management and administration.

Candidates will probably be chartered accountants aged 28 - 40. They will have sound post-qualification experience in industry or commerce.

Please send a comprehensive C.V. including salary history to:-
J O English F.C.A., Chartered Accountant
P O Box 158, Chesham Court, Chesham Lane,
SLOUGH, Berkshire SL1 5AT

St Michael®

Influence. Innovate. Inform.

Contribute to change
in a £multi-billion
environment.

Marks & Spencer is a major blue chip company whose investment in technology is considerable. This extends to the Finance Group at Head Office, where the following professionals will have an opportunity to influence change:

FINANCIAL ANALYST c.£25,000 + car

Working within a small, young and progressive team, your role will be to develop and implement a framework for determining and increasing the profitability of differing areas of the business. This will involve identifying key costs and influencing necessary change, putting you in close contact with people from all disciplines – both in Stores and Head Office.

You're a qualified accountant with at least 2 years' post qualification experience, ideally including D.P.P. You're also an excellent communicator with a forward looking approach.

COMPUTER AUDIT c.£25,000 + car

Working within a small team you will be involved at every stage of systems development projects. Your role will be to evaluate new systems, analyse problems and recommend solutions. This will give you exposure to a wide range of systems and computer products, and provide the opportunity for progression to other areas of our business.

Probably a qualified accountant, you should have at least 2 years' computer audit experience and the ability to influence change in a role offering considerable involvement.

FINANCIAL AUDIT c.£23,000 (Newly qualified)

You will be a key member of the team responsible for increasing profitability by conducting operational and systems based audits and by the review of new systems with Computer Audit. This will give you a high profile with both Financial and Commercial Managers and will provide opportunity for further progression.

A newly qualified accountant with good audit experience, you must be a strong man-manager, familiar with computer systems, and keen to stimulate progress.

Marks & Spencer's commitment to innovation means that these roles are ideal for creative and highly motivated self-starters. If you would like to gain more recognition by contributing to the process of change, please write with a full cv stating current salary to our advising Consultants: Richard Holland at Robert Half, Walter House, 418 The Strand, London WC2R 0PT. Or telephone 01-836 3545 (Office hours), 01-348 1173 (Evenings only).

We are an equal opportunities employer.

MARKS & SPENCER

YOUNG, HIGH-CALIBRE ACCOUNTANT DEVELOPING RETAIL EXCELLENCE c.£20,000 + CAR + BENEFITS

We are the leading music retailer with over 60 stores throughout the UK. To provide a strong platform for our ambitious growth plans, we now wish to appoint a Financial Planning Accountant with energy and commitment to make a significant contribution to our exciting future activity.

Based in Oxford Street W1, you will be given real responsibility to shape the forecasting and budgeting process. This role will offer considerable scope to influence the direction of the business both on tactical and strategic levels. You will be expected to create and evaluate alternative courses of action. The successful candidate will need to possess the appropriate breadth of vision to capitalise on these opportunities. Success in this position will lead to further career development in the Company or within the Group.

You will be a qualified accountant with at least two years post qualification experience, possess well developed communication and influencing skills and enjoy working as a team member. You will have substantial experience of financial modelling and be able to apply the latest technology in pursuit of your objectives. This appointment will suit an ambitious accountant who can respond to the challenge of growth in a fast moving retail environment.



To apply, please write with full career details by no later than Tuesday April 5th to Stuart Hardy, Personnel and Training Manager, Film House, M2 Wardour Street, London W1V 3AU.

We welcome applications from both women and men.

The World's Best Music Stores.

A THORN EMI Company.

'In Fact... Potential Director Material'

FINANCE MANAGER

Northern Home Counties

c.\$25K + Generous Bonus + Car

As part of a radical decentralisation programme, our Client (a major presence on the nation's high streets and part of one of the UK's largest and most prestigious commercial groups) now wishes to appoint a new MANAGER OF FINANCE. This move will be a critical step in their overall plan to strengthen the Regional management team.

The Finance Manager will immediately take charge of a small, well-established department. In addition to managing the company's financial affairs, however, she/he will also handle a number of administrative functions such as transport, property and all insurance matters.

Computer systems, both mainframe and mini/PC based, have broadly been established on ICL equipment, but a major change at group level to IBM hardware is currently in progress. The Finance Manager will, therefore, as part of her/his longer term business activities be expected to help develop and nurture further systems improvements.

Direct reporting will be to the Regional General Manager, with an indirect 'dotted line' reporting structure to the F.D. Full participation in the commercial decision making process at a senior level will be seen as an integral part of the role.

Candidates must be qualified accountants in the 28-35 age range, with a good knowledge of systems and a sound commercial background. A Business Management Degree would be an attractive bonus. Specific experience in retailing or a similar service industry would also be highly advantageous.

During our briefing, descriptions such as 'self-starter', 'pro-active', 'good listener', and 'outgoing' were used to highlight key features of the ideal applicant's personality. The main criteria for success that we will be looking for, however, will be a superb commercial acumen linked to managerial competence.

Candidates may apply in the first instance by calling our Executive Express Line during normal office hours and asking for our Managing Consultant – Ron Irving. The number is 01-937 5771 (also available 24 hours). Alternatively you may choose to send your Curriculum Vitae direct to our London Office, marking the envelope 'Reference FM/WAT'.

We look forward to hearing from you.

THE
**HAMILTON
IRVING**
CONSULTANCY

CONSULTANTS IN HUMAN
RESOURCES AND RECRUITMENT
TO THE RETAIL INDUSTRY

London House,
26-40 Kensington High Street,
London W8 4PP
Telephone: 01-938 2222

Corporate Recovery Seniors Exciting Opportunity For Talented ACA's Manchester

£s Excellent

Our rapidly expanding Corporate Recovery and Insolvency Division covering the North West seeks young and ambitious Seniors to contribute to the next stage of the Division's development.

Reporting to Principal level, you will assume responsibility for a diverse range of corporate viability reviews and monitoring assignments as well as senior level exposure to company receiverships, administrations and liquidations.

Age range 25 to early 30s, you should have clear management potential in the short term and the ambition to succeed in a busy and growth orientated environment.

Interested candidates should send their full CV and current salary details in confidence to Ken Chalk, Spicer & Oppenheim, Derby House, Booth Street, Manchester, M60 2ED.



SPICER & OPPENHEIM

A MEMBER OF SPICER & OPPENHEIM INTERNATIONAL

APPOINTMENTS

ADVERTISING
For further information
call 01-248 8000
Tessa Taylor
ext 3351

Deirdre Venables
ext 4177

Paul Maraviglia
ext 4676

Elizabeth Rowan
ext 3456

Patrick Williams
ext 3694

Financial Director Designate

Essex/London
Borders

c. £30,000 + profit
share and car

Our client is a highly successful medium-sized financial services/estate agency organisation with ambitious growth plans that are supported fully by the parent Pte.

This is a new appointment where the Finance Director Designate will be closely involved in developing strategic plans, detailed budgets and systems improvements so that the planned rapid growth can be achieved. There will also be the need to manage a small but growing existing accounts and administration department.

Applicants should be qualified accountants aged around 30 with recent experience of a service organisation gained possibly while in the accountancy profession. Some exposure gained in a commercial environment is an essential requirement.

A Board appointment is envisaged after about one year.

Please write to Michael Ping enclosing career details and current salary, quoting reference 1070/P, at Executive Selection Division, Grant Thornton Management Consultants Limited, Grant Thornton House, Melton Street, Euston Square, London NW1 2EP.



Grant Thornton

Management Consultants

OFFICIAL SPONSOR OF THE 1988 BRITISH OLYMPIC TEAM

Hoggett Bowers

Executive Search and Selection Consultants
BIRMINGHAM, BRISTOL, CAMBRIDGE, CANBERRA, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE, NOTTINGHAM, SHEFFIELD and WINDSOR
A MEMBER OF BLUE ARROW PLC

Management Accountant

£200m Oil Exploration Business
Central London, Up to £24,000

The position involves a very broad range of management accounting activities, including preparation of monthly reports, co-ordination and consolidation of capital budgets, and major ad hoc reviews of specific capital and operating expenditures areas. The business is currently engaged in drilling 80 wells in Europe, plus c15 pre-drilling planning projects, with a total accounting team of 14. It is part of a well-known major oil company, renowned for its upstream activities, and with strong emphasis on good financial management. There are excellent career prospects. Broad experience of management accounting in an industrial/commercial environment is required. Applications are invited from candidates with accounting qualifications, or unqualified candidates with oil industry experience.

D. Venables, Hoggett Bowers plc, 1/2 Hanover Street, LONDON, W1R 0WB, 01-734 6852. Ref: H15029/FT.

Financial Managers

Opportunity for Top Accountants to Move into Retailing
Midlands, To £20,000, Car

A leading High Street Retailer has recently completed a major review of its organisation and identified the key positions necessary to meet its planned growth and future developments. In these high profile roles, as members of the finance team, you will work very closely with the senior Management of the Company. Responsibility will be for introducing effective forecasting and budgeting, assessing branch and product profitability and enhancing generally the quality of management information available, to aid proper control and highlight business opportunities. The requirement is for commercially minded qualified or exceptional part qualified accountants, probably aged 25-30, who have already been successful in a demanding fast moving environment. Familiarity with the development of sophisticated management information using micro-computers is essential, as are the personal qualities necessary to influence business decisions at the highest levels and secure rapid career progression either in finance or general management.

P.S. Worsley, Hoggett Bowers plc, Castle House, 74 St James's Street, NOTTINGHAM, NG1 6FF, 0662-412019. Ref: E13023/FT.

These positions are open to male or female candidates. Please telephone for a Personal History Form to the relevant office, quoting the appropriate reference.



FINANCIAL CONTROLLER

Leicester £20,000 + Car + Bonus

Circle K—one of the world's largest convenience store chains—has made a dramatic impact on the UK market since its arrival in 1986. As part of its impressive expansion plan, it operates a number of Area Franchises, the East Midlands Area trading under the name of Central Convenience Stores. This young and dynamic company is looking for a Financial Controller—in a similar mould—to help achieve its planned growth from six to one hundred stores within the next four years.

Reporting to the Finance Director, this is a front line accounting position where principal responsibilities will include preparation of monthly management accounts, monthly margin reports, weekly sales statistics and stock movements as well as the day to day running of an accounting department. In addition, you will be expected to contribute to the company's growth and success by your contribution as part of the senior decision making team.

You will be aged 25-35, a qualified Accountant with first class technical skills and experience of working to very tight timeframes. A good working knowledge of IBM-PCs and of Lotus 1-2-3 models and spreadsheets is essential while some retail accounting experience would greatly shorten the learning curve. A positive personality, the ability to thrive under pressure, energy, enthusiasm, commitment and ambition are all pre-requisites for success.

This position offers the opportunity of contributing directly to the company's success and in so doing, to your own success and rapid promotion.

A salary of £20,000 p.a. is offered plus bonus and a fully expensed company car. If this challenge excites you, then please write with full career details quoting reference L/100/88 to Moring Lloyd.



Peat Marwick McLintock

Executive Selection
Arlan House, Salisbury Road, Leicester LE1 7QS. (0533) 471122

MANAGING GROWTH

N. Leics

Excellent Package + Equity

Millway Foods is a new company formed, with strong institutional backing, by a talented team which is particularly strong in sales and marketing. Millway has acquired the Harby cheese factory—manufacturing primarily Stilton but also territorial cheeses. The company is confidently looking to substantial growth and flotation. A Finance Director is now needed to complete the executive team.

We seek a computer-literate accountant (probably chartered) with, ideally, some experience of medium-sized companies, food products and/or the City. Specific experience is, however, less important than the ability to fit in to the ethos of the team and yet the individuality to bring something special to the party. He or she must have both the judgement to provide the Board with sound financial advice and the presence to represent the company in financial circles. Age is not a critical factor.

3i Consultants Ltd
Human Resources

Salary negotiable. Car and all running costs. Assistance with relocation. Opportunity for equity participation after an appropriate qualifying period.

For further details and an application form please telephone Windsor (0753) 867175 (24 hrs) or write with full details and salary aspirations to David MacIntosh, Director—Human Resources, 3i Consultants Ltd, 8 High Street, Windsor, Berks, SL4 1LD quoting ref: DM/742

3i A WEALTH OF EXPERIENCE

FINANCIAL DIRECTOR

(Designate)

NR. HEATHROW

c.£25,000 + car

Our client is a young, successful and rapidly expanding Company—manufacturers of a specialist range of consumer products. Growth has created a challenging opportunity for a professional Qualified Accountant—preferred age 25-35 to join as FINANCE DIRECTOR and play a significant role in the development of the Company. This is a job demanding Total Involvement—the Financial Director will be responsible for introducing Computerised Facilities—Controlling all Financial, Management and Cost Accounting/Inventory, Administrative and Legal matters together with providing a full supporting service to Sales and Production Management. Turnover at present is £3M but this is expected to double in the next year—the Company has a sound client base and impressive marketing policies. Applicants should have experience of controlling an all round similar role in a small Company or rapid growth situation.

If this sounds like the challenge you are seeking—contact—
ARTHUR FLITTER (Adviser to the Company)

Beaumont House,
Station Path,
STAINES,
Middx TW18 4AL
Telephone: Staines (0784) 62131 (8 Lines)

BEAUMONT
MANAGEMENT
SERVICES LTD.



Financial Appointments made easier



Acquisitions/Corporate Finance

Coloroll—the fastest growing international home fashion group in the UK—with sales taken from £35m to approaching £300m in just 3 years.

If you would like the opportunity to join—
one of the most exciting companies in the UK
a highly professional corporate finance team, and
a finely tuned post-acquisition management team,

then this is for you.

- * Are you hungry for career success?
- * Do you have strong analytical and quantitative skills?
- * Are you 25-35 with a good first degree and/or an MBA?
- * Would you thrive in a fast, dynamic, demanding environment?
- * Are you prepared to make a substantial personal commitment to your employer?

If the answer to these questions is Yes, then write to Mrs J Cull, Hoggett Bowers plc, St James's Court, 30 Brown Street, MANCHESTER, M2 2JF, quoting reference M16025/FT. You would be based at the Group's Manchester office, offered a very attractive salary/benefits package and report to the Group Managing Director.

Hoggett Bowers

Executive Search and Selection Consultants
BIRMINGHAM, BRISTOL, CAMBRIDGE, CANBERRA, GLASGOW, LEEDS, LONDON, MANCHESTER, NEWCASTLE, NOTTINGHAM, SHEFFIELD and WINDSOR
A MEMBER OF BLUE ARROW PLC

Compliance Officers

City

c.£30,000 + car

Spicer & Oppenheim, a leading firm of Chartered Accountants, is seeking Compliance Officers to assist the Compliance Partner. In these assistant roles, the Officers will be responsible for establishing effective procedures to ensure that the firm, together with subsidiary organisations, comply with the requirements of membership of the RPB and SRO's. It is envisaged that, after an initial period, these Officers will also be involved with that part of the firm's City Practice which advises securities organisations on the impact of the Financial Services Act.

Applicants, aged under 40, should have a degree or professional qualification. A legal background and some experience of the investment advisory industry and the Financial Services Act would be desirable.

The remuneration package includes a contributory pension scheme and a car, as some travel throughout the UK will be required.

Applicants should apply with a brief C.V. to Jane E. Wright, Senior Recruitment Officer, Spicer & Oppenheim, Friary Court, 65 Crutched Friars, London EC3N 2NP.



SPICER & OPPENHEIM

A MEMBER OF SPICER & OPPENHEIM INTERNATIONAL

UK Finance Manager

Medium-sized publishing and printing group

... contributing to change in an expanding business

c£26,000 + car Northern Home Counties

This well-known privately-owned company, which designs and prints a wide range of products, has a turnover of over £12 million. It is UK based, with a substantial export business and a number of overseas operations. From its sound and profitable base it is now going through a period of considerable change to meet the demands of a very competitive market-place.

Reporting to the Group Finance Director, you will initially be responsible for the finance function of the UK publishing business. Your main accountabilities will be the effective management of this operation and the development of improved financial systems and controls. The role is likely to expand significantly in scope in the future.

A qualified accountant is required, preferably aged 30 to 50, with extensive financial management experience, plus the commercial skills necessary to contribute to the overall management of the business.

There is an attractive benefits package. Including an excellent pension scheme. Please write with full career details to B G Woodrow, ref. B.73347.

MSL International (UK) Ltd,
Clifton House,
2-4 Clifton Terrace,
Derby Road,
Nottingham NG7 1LY.
Office Contact: Mr Woodrow, Personnel and Admin Dept.

Group Financial Controller

with fluency in "German"

c£25,000, car

East Anglia

This is a new appointment with a £100m+ subsidiary of a major international group. The Company which has grown dramatically both by expansion and acquisition over the past several years has a number of operating companies throughout the UK and Germany.

Combining both a control and advisory function, constant contact with subsidiaries, particularly those in Germany, is envisaged and therefore travel will be a necessary part of the role, including an element overseas. The job specification is as would be expected from such a position and includes group consolidation, treasury and secretarial duties. This is very much a supporting role, working closely with the Group Financial Director.

Bilingual candidates, either ACA or ACCA should have several years experience in a fast moving, commercially orientated business where reporting deadlines and tight operational standards have been the key to business success.

This is an opportunity to demonstrate personal ability and where career prospects are excellent. Male or female candidates should send a comprehensive c.v. or telephone for an application form to Howgate Sable & Partners, Barnett House, 53 Fountain Street, Manchester, M2 2AN. Telephone: 061 228 6919 quoting reference: (F.T. 51)

Howgate Sable

EXECUTIVE SEARCH AND SELECTION

c£26,000 p.a. Financial Controller Oxfordshire

HIGH TECHNOLOGY

A commercially minded chartered accountant, aged 30-45, male or female, with a working knowledge of French a distinct advantage. Must have proven industrial experience in a small/medium sized manufacturing environment. This experience will include knowledge of continental accounting practices, particularly French, exchange risk control and the consolidation of European subsidiaries. An understanding of micro-computer based systems is essential. An excellent career opportunity, with directorship potential in a small but expanding 'high tech' private company manufacturing and selling its products throughout Europe. Frequent short stay continental travel will be required. Fringe benefits include share option potential, contributory pension, company car, medical/life cover and relocation expenses.

Suitably qualified candidates please phone 01-600 4708 for an application form quoting GF831 (24 hour service).

GREYFRIARS

A Member of the Goldsmiths Group PLC

JOHN W G FORBES MANAGING DIRECTOR
104 NEWGATE STREET, LONDON EC1

JAC Recruitment

(Japan Agency & Consultancy)

3rd Floor
College Hill Chambers
23 College Hill
London EC4R 2RT
Tel: 01-236 8192 (5 lines)
Fax: 01-489 1094

ASSISTANT MANAGER £20-30,000 + Benefits
To liaise with the Company Secretary and command responsibility over accounting functions, compliance and personnel. Accounts experience within a securities house is preferred.

ASSISTANT ACCOUNT MANAGER £25,000 + Benefits
ACA or ACCA qualified accountant with more than five years experience in Management/Financial Accounting is required by an expanding City Merchant Bank. You'll be supervising two staff in Accounts Department and reporting to the Company Secretary. Age up to 33. Graduates preferred.

For further information please contact:

MRS Y BARKER
on 01 236 8192
JAC Recruitment
23 College Hill, London EC4R 2RT

JAC

EXCITING FAR EAST SALES OPPORTUNITY

An independent international stockbroker seeks two senior experienced salesmen or women in its London office to assist its rapidly expanding Far East business. They will in particular focus their initial efforts on Hong Kong.

The remuneration package will be performance orientated.

Write Box A0862, Financial Times,
10 Cannon Street, London EC4P 4BY

BLOODSTOCK ACCOUNTANT

Required for large stud and racing establishment in East Anglia.

Must be able to work on own initiative.

Responsibilities to include preparation of monthly and annual accounts; budgets; and cashflow forecasts.

Knowledge of computer systems an advantage. Exciting and challenging position for the right individual. Remuneration will be commensurate with ability and experience.

Apply in writing with personal details, and cv before
Friday 8th April, to Box A0870, Financial Times,
10 Cannon Street, London EC4P 4BY

ACCOUNTANT

Career opportunity within a small group of Companies offering full exposure to the Board of Directors. You will be a young newly qualified Accountant prepared to direct and produce management information and accounts. This appointment has no upper limits, and your enthusiasm and business skills will help guide the Group to greater things. The Groups activities include electrical manufacturing, electrical contracting and electronics manufacturing. Remuneration would be by negotiation but with a company car.

We are located adjacent to London Heathrow and you should apply privately to R J Zannett or D J Fidler, Synchronised Systems Limited, Horton Road, Colnbrook, Slough, Berkshire, SL3 0AT or telephone 0753-681598.

FINANCIAL CONTROLLER ST. ALBANS to £25,000 + CAR

Dedicated, hardworking and progressive qualified accountant required for fast growing, busy private trading company in St. Albans.

Our client is proud of its reputation for quality and service and is looking for the right person to supplement an experienced management team looking to develop the Company, including through acquisitions if appropriate.

Interesting long-term prospects await the successful candidate, who will be aged 28-35 and have a recognised accountancy qualification. He will be responsible for all aspects of the accounting and reporting requirements of the Company.

Please write comprehensive career details to Span Advisory,
112 Clerkenwell Road, London EC1M 5SA.

FINANCE DIRECTOR

GLAXO HOLDINGS p.l.c.

This opportunity which arises from the impending retirement of the Finance Director is one of the most significant finance appointments in British Industry.

Candidates, preferably in their fifties, must have substantial experience operating on the main board of a major group of companies.

Please send details - which will be treated in complete confidence and will not be divulged without prior consent - to Sir Paul Girolami, Chairman, Glaxo Holdings plc, 61 Curzon Street, London W1.



Finance Controller

High profile commercial role within rapidly expanding company

Surrey up to £20k + bonus + car

The company is part of a highly profitable British multi-national plc with a turnover of c. £80 million. Growth through acquisition and diversification has been dramatic, offering an outstanding opportunity to build from a broader base and create new openings well into the 1990s.

This £3.5 million subsidiary in the building services industry has earned a successful niche position in the competitive and rapidly growing market for air conditioning products.

To develop the business still further a Finance Controller is needed who has the ambition and talent to make a substantial contribution to a small and dynamic management team.

Reporting to the Managing Director you would enjoy a varied, demanding brief and highly visible role, contributing to all major commercial decision-making processes. Key tasks will be to continue the development of financial, budgetary and management information systems, computer systems and generally strengthen the financial management within the operation.

The need is for a qualified accountant, probably late 20's with well developed communication skills and the ambition to be a 'key player' in this rapidly expanding company. Experience gained within a manufacturing operation or similar would be particularly useful but is not considered a prerequisite.

An excellent remuneration and rewards package is offered together with good career prospects.

Please contact our Consultant, Loraine Pemberton, quoting reference: 900/131, at: MSL Advertising, Pilgrim House, 2/6 William Street, Windsor, Berks SL4 0BA. Tel: (0753) 842044.

Office in Europe, the Americas, Australia and Asia Pacific

MSL Advertising

Finance and Accounting Manager

Thames Valley c. £23,000 + car and benefits

Heseltine, Moss & Co., a member of the Brown Shipley Stockbroking group of companies, wishes to appoint a Finance and Accounting Manager. This is a new role which completes the management team responsible for the development and day to day running of the financial and other support services of the company.

Heseltine, Moss provides a range of stockbroking services to both private and institutional clients and its 13 offices constitute one of the largest networks of any broking house in the UK.

The Manager will report to the Finance and Operations Director and lead a department of approximately 20 staff. His/her duties will include ensuring that the accounting and treasury functions provide the financial information to effectively manage the company's operations and meet regulatory and corporate reporting requirements.

There will be considerable involvement in the implementation of new computer systems, the preparation of annual budgets and the formulation of longer term plans.

The Manager will have every opportunity for career development and the satisfaction of being in a position to have a direct impact on the company's growth.

Candidates should be qualified accountants aged 28-35 and ideally educated to graduate level. They may currently be working in a professional firm, but looking to move into their first line role. Although experience of the financial services industry would be useful, management skills, drive and enthusiasm are essential to succeed in this demanding environment.



Please send details of your career to date to Sue Canning, Personnel Officer, Heseltine, Moss & Co., 30/31 Friar Street, Reading RG1 1AH.

BROWN SHIPLEY STOCKBROKING



Operations Analyst - Leisure

Newly/Recently Qualified Accountant

Central London £22,000 + Car

Report to the Operations Director of this highly acquisitive British Leisure company. Following a profit increase in excess of 75% in 1987, this £multi million group now offers a superb opportunity to a newly/recently qualified accountant.

The successful candidate will take responsibility for identification of new business options, feasibility studies and investment proposals whilst monitoring capital expenditure and systems development.

Candidates keen to make an immediate contribution to key management decisions, aged 23-27 and ACA/ACCA/ACMA can achieve Operational Controllership within 2 years.

Please contact ANDREW LIVESLEY Ref. 4538, ALDERWICK PEACHELL and PARTNERS LTD., Financial and Accountancy Recruitment, 125 High Holborn, London WC1V 6QA. Tel: 01-404 3155.

**Alderwick
& Peachell**
PARTNERS LTD

COMPANY SECRETARY

A New Appointment
London Base
C. £20,000

Our client is a privately owned group of companies serving both regional and national markets. Their continuing growth demands that they recruit a Company Secretary to take on secretarial responsibilities from the Finance Director.

Responding to the Chairman, he or she will be responsible to the board for all legal and constitutional aspects of the Company. In addition they will be involved in group pensions, insurances and health and safety administration.

Applicants should be in their late 20's or early 30's. They will currently be involved in an administrative role, preferably in a company secretarial department. Ideally candidates will already have or will be about to obtain an ACIS qualification. The ability to communicate effectively is an essential requirement.

This appointment offers an attractive career development opportunity in a Group expanding by organic growth and by acquisition. The benefit package includes a salary in the region of £20 K plus other benefits commensurate with a progressive company.

If you would like to discuss this appointment contact Keith Fowler on 0295 67545. Alternatively, contact Debbie Hannah on the same number for a Personal History Form or send her your c.v. quoting reference TRI/KWF/256. Candidate confidentiality will be maintained.



Tripos Consultants Limited

60 Calthorpe Street, Banbury, OX16 8EX
Tel: (0295) 67545/59843 Tlx: 94014098 - MGMT G
International Management Consultants



DEPUTY TREASURER

Salary neg. up to £30,000

Our client, Maxwell Communication Corporation plc needs little introduction. It has achieved success and prominence as a global information and communications group encompassing activities in publishing, printing and related businesses.

At the Holborn head office they are creating a new position of Deputy Treasurer. The responsibilities will be the planning, forecasting and control of Maxwell Communication Corporation's cash flow and working capital requirements and the attendant tasks, banking relationships and treasury functions which that entails.

Candidates should be professionally qualified ACA or ACT in their 20's or 30's. Previous Treasury experience preferred but not essential.

Please write with full career details, quoting ref. BM 818 to the Managing Director, Executive Selection Division, 18 Grosvenor Street, London W1X 9FD.

ESD is the Executive Selection Division of EAL International

Marketing accountant

Recently Qualified. Essex, c.£20,000



Our client is an expanding profitable company with a turnover of around £30 million and subsidiaries in the USA and Eire. They are market leaders in optical instrumentation in both medical and industrial fields. Planned growth has created the opportunity for the new position of Marketing Accountant.

Reporting directly to the Financial Controller, this role is outside the traditional mainstream financial function and offers the opportunity to be involved in the sales and marketing aspects of the business. The successful candidate will be a recently qualified accountant in their mid-20's from either commerce or the profession who wishes to make a major impact in the area of pricing and profit management. Determination, commercial awareness and a flexible approach will result in a high degree of job interest, challenge and opportunity.

Company benefits include free life assurance, free BUPA (after one year) and contributory pension scheme. Relocation assistance will be considered.

Résumés, which will be acknowledged and forwarded to our client unless a covering letter gives contrary instructions, should be sent to Chris Haworth quoting reference CH 882.

**Coopers
& Lybrand
Executive
Selection**

Coopers & Lybrand
Executive Selection Limited

Shelley House 3 Noble Street
London EC2V 7DQ

Company Notices



Crédit National

FF 500,000,000
Guaranteed Floating Rate Notes due 1991

In accordance with the terms and conditions of the Notes, notice is hereby given that for the interest period from March 23, 1988 to June 23, 1988 the Notes will carry an interest rate of 8 1/4% per annum.

The interest payable on the relevant interest payment date, June 23, 1988, will be FF 217.22 per Note of FF 100,000 nominal and FF 2,172.22 per Note of FF 1,000,000 nominal.

The Reference Agent
KREDIETBANK
S.A. LUXEMBOURG

New Coupon Sheets

Schering Aktiengesellschaft
Berlin and Bergkamen
717200

Shareholders are hereby advised that new coupon sheets with coupons Nos. 51-70 and talon will be issued free of charge against presentation of the old talon as from 5th April, 1988 at the offices of:

S.G. WARBURG & CO. LTD.
Paying Agency, 8th Floor,
1 Finsbury Avenue,
London EC2M 2PA

We should be obliged if shareholders would lodge the old talons, sorted by face value and number, with a list of the numbers in triplicate.

Where shares are held in safe custody by a bank, no action by shareholders is required.

The shares of our company will be good delivery with either the old talon or the new coupon sheet between 5th April, 1988 and 4th May, 1988 inclusive, or with the new coupon sheet only as from 5th May, 1988.

Berlin and Bergkamen,
March, 1988.

The Board of Directors

ACCOUNTANTS. A BETTER WAY TO MOVE

Landsdowne Appointments Register now have vacancies in London and throughout the country for Accountants aged 21-40 years. NOW SHORTLISTING: Part Qualified, Newly Qualified, Management, Financial, Project and Chief Accountants and Financial Analysts. Our proven, FREE service is the easy effective way to look around.

Contact us NOW on 01 568 2926, quoting reference 8X0324PFT or write enclosing your CV to: Stuart Tait, Landsdowne Appointments Register, Kew Bridge House, Kew Bridge Road, Brentford, Middlesex TW8 0ES

CHARTERED ACCOUNTANT

SALARY UP TO £25,000 PLUS CAR
Required by Mercedes-Benz main agents in South West London. Candidates should be aged between 28 and 38 years with at least two years commercial experience in a computerised environment.

Please send your current C.V. to: G.C. Barker, Director Finance, Geyfords Ltd, 1 Stafford Road, Wallington, Surrey. SM6 9AQ

ACCOUNTANCY APPOINTMENTS

APPEAR EVERY
THURSDAY

FOR FURTHER DETAILS
PLEASE

CONTACT

TESSA TAYLOR

248 8000
EXT 3351

DEIRDRE VENABLES

EXT 4177

PAUL MARAVIVLIA

EXT 4676

ELIZABETH ROWAN

EXT 3456

PATRICK WILLIAMS

EXT 3694

GENERAL APPOINTMENTS

APPEAR ON

WEDNESDAY

Company Notices

STATE BANK OF SOUTH AUSTRALIA
A \$75,000,000
FLOATING RATE NOTES DUE 1994


Holders of the notes of the above issue are hereby notified that for the next interest sub-period the following will apply:

INTEREST RATE: 10.25 PER CENT PER ANNUM
INTEREST PERIOD: 18 MARCH 1988 - 20 JUNE 1988
INTEREST AMOUNT DUE: 20 JUNE 1988
PER \$10,000 NOTE: A\$263.97
PER \$5,000 NOTE: A\$131.99

BANK OF TOKYO AUSTRALIA LIMITED
AGENT BANK

SCHERING

ANTS.
WAY TO

TAYLOR WOODROW

TEAMWORK IN HOMES
WORLDWIDE

SECTION II - COMPANIES AND MARKETS
FINANCIAL TIMES

Thursday March 24 1988

Hunting Gate
4444
DESIGN + BUILD
TELEPHONE 0452 3 4444

Chemical Bank to sell off UK mortgage lending unit

By Stephen Fidler in London

CHEMICAL BANK, the US banking group, is to sell its UK mortgage lending unit because it is tying up too much of its scarce capital resources.

Chemical Bank Home Loans employs about 100 in London and in Cardiff, 10 per cent of the New York bank's workforce in the UK, and holds about £1.3bn (\$2.3bn) of mortgages.

S.G. Warburg, the merchant bank, has been asked to auction the business. This is expected to take a few months so no price has been fixed.

The subsidiary, which began mortgage lending in the UK in 1981 and which will be sold as a going concern, is Chemical's only retail banking operation outside the US. While it has been profitable, "it does not fit the

long-term strategic plan of the bank," the bank said yesterday. The move has also been prompted by tougher regulations on bank capital being introduced by the Federal Reserve, the US central bank. Although the new rules will not be fully applied for four years the Fed is increasing its monitoring of bank capital from the middle of this year.

Under the rules most US banks will have to boost the amount of capital they set against their assets. Compared with bank capital proposals in other industries, listed companies, they are particularly tough on mortgage loans.

Some UK and other European institutions are understood to have expressed an interest in the subsidiary. The likelihood that capital requirements for mort-

gages will be lowered in Europe makes house finance a more profitable option for European than for American banks.

US bank share prices are depressed because of Third World debt worries so it is expensive for banks to raise share capital. US banks have been wondering if they can shed businesses inside and outside the US.

Chemical has already tried in vain to sell its capital-intensive US consumer finance business, and other US banks are said to be considering the sale of their UK house finance operations.

Chemical also said five members of its seven-strong mortgage corporate finance team would be transferred to Baring Brothers, the UK merchant bank.

Hewlett and Microsoft react to Apple suit

By Louise Kehoe in San Francisco

HEWLETT-PACKARD, the US electronics group, and Microsoft, the software concern, have both reacted strongly to the copyright infringement suit filed against them last week by Apple Computer.

While vigorously denying Apple's charges, both HP and Microsoft have separately taken issue with the Apple suit.

The suit, which centres on claims that HP and Microsoft have copied display images from Apple's Macintosh computer for use in recently developed software programs, now appears certain to create a bitter legal battle that could deeply divide the protagonists.

Hewlett-Packard accused Apple of modifying screen images from HP's NewWave program to look more like Apple's Macintosh. As part of the evidence supporting its case, Apple presented a series of photographs to illustrate the close resemblance of the visual displays from Macintosh and from HP's NewWave programs.

The images have been altered," HP said. "One of the features of the NewWave software developer's kit that we are shipping to software publishers and which we have shipped to Apple is the ability to change the design of the screen," HP explained.

According to HP, the screen displays photographed by Apple are not standard NewWave displays.

Apple contends, however, that "all the images that appear in the photographed NewWave screens appear in the NewWave program."

As well as bringing Apple's evidence into question, Hewlett-Packard vehemently denied that it had ever approached Apple requesting a licence to use Macintosh displays as Apple stated in its suit.

Intel to re-enter DRAM market with Micron deal

By Louise Kehoe in San Francisco

INTEL Corporation, one of the leading US chip makers, yesterday announced its re-entry into the market for Dynamic Random Access Memories (DRAM) through an alliance with Micron Technology of Boise, Idaho, one of only two remaining DRAM makers in the US.

The two US companies aim to boost US participation in the memory chip market reducing US dependence on Japanese chip suppliers. The alliance comes at a time when a severe shortage of DRAMs is threatening to cripple the US computer industry.

Intel, which invented the DRAM in the early 1970s, was one of several US semiconductor firms forced to abandon this sector of the business in the mid-1980s in the face of severe price competition from Japanese chip makers.

US allegations of Japanese dumping of memory chips during that period gave rise to the 1986 US Japanese Semiconductor Trade Agreement under which Japan promised an end to dumping.

Announcing Intel's re-entry into the DRAM market yesterday, Robert Noyce, Intel chairman, said that the trade pact had created a business environment in which the risks of a recurrence of dumping have been reduced enabling US companies to make the huge investments needed to rebuild the US memory chip industry.

Dr Noyce rejected criticism of the trade pact, which many have blamed for dramatic increases in DRAM prices and the current shortage. "The reason we have a shortage is because Japan destroyed the US industry. Now we have an opportunity to rebuild it," he said.

Under the terms of its alliance with Micron, Intel has agreed to

buy large quantities of DRAMs from Micron which it will resell under its own name. "We will become Micron's largest customer," said Dr Noyce. The three year agreement will initially cover 256K DRAMs. As part of the agreement, Micron has issued to Intel a warrant for the purchase of 600,000 shares of Micron stock at an exercise price of \$18.375 per share.

Mr Joe Parkinson, chairman of Micron Technology, said that the alliance with Intel had enabled his company to move confidently toward expanding its production capacity. Micron will today break ground on a new DRAM plant that will double the company's output, he said.

Other US semiconductor companies including National Semiconductor and Motorola have said that they are considering moves to re-enter the DRAM market.

B&D quits American Standard bid battle

By Our New York Staff

BLACK & DECKER, the US power tools group, has agreed to withdraw from the bidding battle for American Standard, leaving a clear field for the \$78 a share, \$2.5bn cash bid from Kelso, a New York leveraged buyout specialist.

Kelso will pay Black & Decker \$25m to cover its expenses in the takeover saga which Black & Decker triggered with a \$56 a share bid in January.

The power tool group retains the right, however, to resume its efforts to acquire American Standard if Kelso's bid fails.

In the meantime, Black & Decker undertook to refrain from buying any shares in the maker of plumbing and air conditioning equipment.

Analysts had thought Black & Decker's \$77 a share bid might prevail over Kelso's because it expired two weeks earlier.

But Kelso's statement that it would raise its bid if necessary helped persuade Black & Decker to bow out.

Judge confirms April 7 date for Texaco

By Our Financial Staff

US BANKRUPTCY court Judge Howard Schwartzberg yesterday confirmed Texaco's reorganisation plan, allowing the US oil company to emerge from bankruptcy proceedings on April 7.

The judge, sitting in White Plains, New York State, also denied a request by Mr Carl Icahn, the US investor who is Texaco's largest shareholder, to remove certain releases and indemnities from the plan.

Seagram jumps 23% to \$521m

By David Owen in Toronto

SEAGRAM, the Canadian wine and spirits company which has spent more than \$2m in recent months to acquire Martell of France and Tropicana, the US fruit juice maker, has reported a 23 per cent increase in net income for the year to January 31.

The result reflects improvement in all divisions, with the group's 22.9 per cent stake in Du Pont, the largest US chemicals

company, contributing substantially to the advance.

In all, net income totalled \$521.1m or \$5.46 a share, against \$423.5m or \$4.45 a year earlier. Sales rose 14 per cent to \$3.82bn, from \$3.34bn in the previous year.

Net income from spirits and wines was up 40.5 per cent from fiscal 1987 levels at a record \$144.5m.

The Seagram International

unit again made a major contribution to the improvement, partly aided by favourable foreign exchange rates.

In the US, the Montreal-based company attributed gains to improved sales of its main spirit brands and continued rapid growth in low-alcohol wines, the so-called wine coolers. In Canada, coolers and schnapps showed gains in a generally weak market.

Dominion Textile buys Burlington unit

By Our Toronto Correspondent

DOMINION TEXTILE, Canada's largest textiles company, is to buy Burlington Industries' Klopman International unit in a deal worth US\$90m.

Klopman is a leading European producer of polyester-cotton fabric used for work clothing and various leisure wear fabrics. It employs 2,200 workers and operates two plants in Italy and one in Ireland.

The company already runs six plants in Europe which produce interlining and non-wovens for a variety of industrial applications. In the year to June 30 1987, earnings from international operations totalled C\$2m (\$7m) on sales of C\$12m.

Klopman is the third purchase by Dominion since last year's unsuccessful bid for North Caro-


line-based Burlington. Shortly after Burlington management thwarted Dominion's advances, the Montreal-based company snapped up Burlington's denim mill for US\$205m.

Two weeks earlier, it had arranged to buy the Wayne-Tex bag and carpet liner division of Virginia's Waynesboro Textiles for US\$130m.

This announcement is not an offering of the Bonds which have been sold and appears as a matter of record only.

New Issue

U.S. \$100,000,000



European Investment Bank

9% Bonds Due 1998


Prudential-Bache Capital Funding

Banco di Roma	Bankers Trust International Limited
Banque Paribas Capital Markets Limited	Commerzbank Aktiengesellschaft
Credit Suisse First Boston Limited	EBC Amro Bank Limited
Goldman Sachs International Corp.	IBJ International Limited
Merrill Lynch International & Co.	The Nikko Securities Co., (Europe) Ltd.
Nomura International Limited	SBCI Swiss Bank Corporation Investment banking
S.G. Warburg Securities	Union Bank of Switzerland (Securities) Limited

March 1988

This announcement appears as a matter of record only.

March, 1988



Saab-Scania AB
U.S. \$350,000,000
Multiple Option Facility

Arranged by
Bankers Trust International Limited

Lead Managers

Bankers Trust International Limited	Banque Nationale de Paris
Crédit Lyonnais	Den Danske Bank
The Mitsubishi Bank, Limited	Mellon Bank
	PKBanken
SwedBank	
Co-Lead Managers	
The Sanwa Bank, Limited	Svenska Handelsbanken Group
Managers	
Amsterdam-Rotterdam Bank N.V.	Banque Paribas (London)
Citibank AB	Credit Suisse
Kansallis Banking Group	Rabobank Nederland
	Istituto Bancario San Paolo di Torino
	Swiss Bank Corporation
	The Toyo Trust & Banking Company, Limited
Funds provided by	
Bankers Trust Company	Banque Nationale de Paris
Den Danske Bank	Mellon Bank
PKBanken	SwedBank
Svenska Handelsbanken Group	Amsterdam-Rotterdam Bank N.V.
Citibank AB	Credit Suisse
Rabobank Nederland	Istituto Bancario San Paolo di Torino (London Branch)
	Swiss Bank Corporation
	The Toyo Trust & Banking Company, Limited
Tender Panel Members	
Amsterdam-Rotterdam Bank N.V.	Bankers Trust Company
Banque Nationale de Paris	The Chase Manhattan Bank, N.A.
Den Danske Bank	Istituto Bancario San Paolo di Torino (London Branch)
The Mitsubishi Bank, Limited	PK English Trust Co Ltd
Swiss Bank Corporation	Svenska Handelsbanken PLC
	Bankers Trust Company
	Facility, Tender Panel & Swingline Agent

All of these securities having been sold, this advertisement appears as a matter of record only.

\$400,000,000

British Gas Finance Inc.

\$200,000,000

8¼% Guaranteed Notes Due 1998

\$200,000,000

9½% Guaranteed Debentures Due 2018

Guaranteed as to Payment of Principal, Premium, if any, and Interest by

British Gas plc

Goldman, Sachs & Co.

Salomon Brothers Inc.

Shearson Lehman Hutton Inc.

The First Boston Corporation	Merrill Lynch Capital Markets	Morgan Stanley & Co.
Bear, Stearns & Co. Inc.	Daiwa Securities America Inc.	Deutsche Bank Capital
Dillon, Read & Co. Inc.	Donaldson, Lufkin & Jenrette	Drexel Burnham Lambert
Kidder, Peabody & Co.	Kleinwort Benson	Lazard Frères & Co.
The Nikko Securities Co.	Nomura Securities International, Inc.	
PaineWebber Incorporated	Prudential-Bache Capital Funding	L.F. Rothschild & Co.
SBCI Swiss Bank Corporation Investment banking	Smith Barney, Harris Upham & Co.	
UBS Securities Inc.	Wertheim Schroder & Co.	Dean Witter Capital Markets
Wood Gundy Corp.	Yamaichi International (America), Inc.	

March, 1988

This advertisement appears as a matter of record only.



McDermott Marine UK Limited

(Charterer)

Lease Financing of

the Mono-Hull Crane Vessel
m.v. McDermott Derrick Barge No. 50
(formerly "Challenger")

Lessor

a subsidiary of

Lombard North Central plc

a member of the National Westminster Group

The undersigned initiated, structured and arranged this transaction

Babcock & Brown

as advisor to

British Shipbuilders

March 1988

INTL. COMPANIES AND FINANCE

Springer may face hostile takeover

BY NAIG SIMONIAN IN FRANKFURT

AXEL SPRINGER Verlag, West Germany's biggest newspaper group, appeared in danger of falling into unfriendly hands yesterday following the news that Mr Leo Kirch, the Munich-based film entrepreneur, who holds 10 per cent of its shares, has agreed to pool his stake with the 28.9 per cent held by Mr Franz Burda and Mr Frieder Burda, members of the German publishing family.

If, as he has claimed, the reclusive Mr Kirch has a say over a further 16 per cent of Springer's stock then he and the Burdas would control a majority of the shares. The Burdas' holding springs from an agreement in 1983 made after an abortive merger bid with Springer the previous year.

Neither Mr Kirch nor the Burdas have explicitly stated their plans, but gaining management control appears their likely aim. At yesterday's closing price of DM560, the Springer group has a stock market value of around DM1.6bn (\$1.1bn).

Last July there were reports that Mr Kirch was talking to other large shareholders about co-operating on publishing and television within the Springer group.

The company itself has reacted angrily to the latest news. According to Mr Bernhard Servatius, chairman of its supervisory board, "the inheritors and executors of Axel Springer know how to defend every attack on the existing order in the company."

Axel Springer Verlag, which publishes the popular Bild Zeitung and the quality daily Die Welt newspapers, among others, has been the subject of considerable speculation following the flotation of 49 per cent of its stock in 1985 and a series of boardroom rows last year.

According to a statement by the Springer group, Mr Kirch and the Burda brothers would seek to appoint five of the company's nine supervisory board members, giving them sway over appointments to the managing board and company policy.

Meanwhile, the German Cartel Office yesterday took the initial step of contacting Mr Kirch and the Burdas to clarify their holdings and intentions. If they do

hold a majority, the authorities would then launch an investigation into any potentially anti-competitive consequences.

However, the chances of the Cartel Office blocking the agreement are not immediately obvious.

Though both Mr Kirch and the Burdas are associated with the media business, the combination does not immediately suggest any monopolies.

Mr Kirch is heavily entrenched in the film business. Meanwhile, the two Burda brothers have limited themselves to printing and paper following an agreement with a third brother, Mr Herbert Burda, who took control of the family's substantial publishing activities.

Skandia takes stake in Vesta

BY SARA WEBB IN STOCKHOLM AND KAREN FOSSLI IN OSLO

SKANDIA, THE leading Swedish insurance company, yesterday stepped up its plans to create a Nordic insurance group when it agreed to take a stake in Vesta, the second largest Norwegian insurance company, in a deal worth Nkr1.1bn (\$172.6m).

The move is part of Skandia's strategy to strengthen its standing in the Nordic region in readiness for the creation of the EC internal market in 1992.

It has recently bought stakes in Finnish and Danish insurance companies.

Vesta is to make a direct share issue to Skandia which will give the Swedish group an initial 25

per cent shareholding for Nkr478m, and will also issue a convertible bond which will enable Skandia to increase its shareholding to 50 per cent after two years - provided the Norwegian authorities give their permission.

Normally, foreign companies are not allowed more than 10 per cent in Norwegian finance and insurance groups.

Vesta is attractive for Skandia because both companies have a large share of commercial business.

Vesta has 18 per cent of the non-life insurance market in Norway, 9 per cent of the life busi-

German metals company sees earnings rise

By Andrew Fisher in Frankfurt

METALLGESSELLSCHAFT, THE West German mining and metals company, is on track for higher profits this financial year after a 10 per cent rise in turnover during the first half.

Results so far in the year to September 1988 were above those of the same period in 1987-88 and higher than budgeted, he added. This was the case in each of the group's three main sectors - raw materials, plant construction and chemicals.

Mr Natus said: "If no serious negative influences come from outside in the next few months, we can expect a more favourable profit than in the previous year." The percentage rise would be at least 10 per cent.

In 1986-87, Metallgesellschaft raised net profits slightly to DM100m (\$59m) from DM85m on turnover of DM13.8bn from DM14.9bn. This was mainly the result of a reduction in oil trading in unstable markets and lower nickel prices. The company is again paying a dividend of DM6 per share.

Mr Natus said it had been especially difficult to calculate profit expectations for this year. Early in 1986-87, all metal prices were low, although some rose later, and the D-Mark had risen steadily against the dollar.

But it had been assumed that economic conditions would not change drastically in 1987-88. "This has been the case in the first few months, with the dollar holding up and the economy remaining at a favourable level."

Metal prices had also recovered - notably those for aluminium, copper and zinc - with sharp rises for both nickel and cadmium.

Metall Mining Corporation, the new Canadian-based subsidiary which groups Metallgesellschaft's foreign mining activities, had developed well. Among its holdings, Teck, the Vancouver mining concern, was continuing successfully while Cominco, also Canadian, had moved from loss to rising profits.

Income slips at Gist-Brocades

GIST-BROCADES, the Dutch biotechnology company, said net income fell by 13 per cent to F1 96m (\$50.5m) in 1987 from F1 111m the year before because of the strong guildler and disposal of a distillery.

Our Amsterdam Staff writes. However, the company said it expected profits to rebound this year. Developments in the first few months of 1988 led Gist to declare an unchanged dividend of F1 130 per share for 1987. Turnover edged up a modest 2 per cent to F1 1.84bn in 1987 from F1 1.8bn.

Schneider lifts bid for Télémecanique

BY PAUL BETTS IN PARIS

SCHNEIDER, THE privately owned French industrial group, has raised the stakes further in the battle for Télémecanique by making an outright bid worth FF4.8bn (\$1.5bn) for the industrial automation company.

Schneider's new offer of FF4.8bn a share for all outstanding Télémecanique shares tops the latest offer by Framatome, the nuclear power group 40 per cent owned by Compagnie Générale d'Electricité. Framatome is offering FF4.5bn a share for all Télémecanique shares.

Paris yesterday to protest against Schneider's takeover bid.

However, the new offer puts Schneider in a strong position to clinch the contest against Framatome. Télémecanique's "white knight", Schneider has already accumulated a 24.5 per cent stake in Télémecanique and is believed to control an additional stake through its allies.

Before making its outright bid for Télémecanique, Schneider had made a partial bid of FF3.5bn a share for 45 per cent of the factory automation company.

Flat gas sales limit DSM to modest increase

By Laura Rasmussen in Amsterdam

DSM, THE Dutch state-owned chemicals company, lifted its earnings modestly in 1987 following flat gas sales, partly as a result of a deconsolidation in preparation for privatisation.

The company confirmed that its move toward the private sector, via the sale of part of the Government's shareholding would take place this year. DSM said it was waiting on government legislation and parliamentary approval.

Local expectations are that about 30 per cent of the company will be publicly floated, which would make the issue the biggest initial offering in the history of the Amsterdam Stock Exchange.

DSM's gas activities serve as a channel for state gas revenues and will remain in government hands after the privatisation.

From January last year, the state's gas revenue has not been consolidated in DSM's turnover, although the company retained its share of operating profits.

Net income rose 7 per cent to F1 442m (\$232.6m) from F1 412m in 1986 following a patchy performance by various divisions. Plastics scored on cost-cutting and process improvements and agricultural chemicals halved their losses. However, plastic products fell into the red while chemical products dropped sharply. Turnover was flat, at F1 8.98bn compared with F1 8.96bn.

Belgian bank group ahead after reduced write-downs

BY WILLIAM DAWKINS IN BRUSSELS

GENERALE de Banque, Belgium's largest commercial banking group, yesterday announced an 8.7 per cent increase in last year's net profits and pronounced its independence in the prolonged takeover battle for Société Générale de Belgique, which directly owns 18.4 per cent of the bank.

Consolidated net profits rose to BF4.4bn (\$181.3m) in 1987 from BF3.9bn, a climb which the bank attributed to reduced write-downs and depreciation charges. These fell to BF3.9bn from BF4.2bn the previous year.

Mr Jacques Groothaert, the bank's president, confirmed yesterday that it had lent BF2.9bn to financial holding affiliates of La Générale to help finance the defence against Mr Carlo De Benedetti's takeover bid.

However, he insisted it was a normal loan to an important customer and that the bank would take no sides in the fight for ownership of La Générale.

"Our independence from all parties would be preferable to any other solution," he told the bank's annual meeting.

Last month, the bank agreed to form a joint venture with Amsterdam-Rotterdam Bank of the Netherlands, prompting speculation that it was seeking an ally in case Mr De Benedetti's bid succeeded.

Net dividends on ordinary shares are to rise from BF245 to BF255, with a total distribution amounting to 61 per cent of the group's net profit.

The consolidated balance sheet total rose from BF2.08bn to BF2.17bn, growth being restrained by the dollar's weakness and a policy of limiting the use of bankers' deposits.

There was, however, a sharp jump in private sector lending.

Sulzer talks break down

BY OUR FINANCIAL STAFF

TALKS BETWEEN Sulzer, the Swiss engineering group, and Mr Tito Tettamanzi over the sale by the latter of a 10 per cent stake in Sulzer have run into difficulties, it was announced by both sides yesterday.

Mr Tettamanzi, a Lugano-based lawyer who leads a group of investors controlling about 25 per

ALL NIPPON AIRWAYS CO., LTD.
(Zen Nippon Kyo Kaisha Ltd.)
GUARANTEED FLOATING RATE NOTES DUE 1991

Unconditionally and irrevocably guaranteed as to payment of principal and interest by
The Long-Term Credit Bank of Japan, Limited

Notice is hereby given that the Rate of Interest has been fixed at 8.8125% p.a. and that the interest payable on the relevant interest Payment Date, June 23, 1988 against Coupon No. 14 in respect of \$5,000 nominal of the Notes will be \$110.76.

March 24, 1988, London
By: Citibank, N.A. (CSSI Dept.), Agent Bank

CITIBANK

Santa Barbara Savings and Loan Association
(Incorporated under the laws of the State of California)
U.S. \$400,000,000
Collateralized Floating Rate Notes due September 1996

Notice is hereby given that the Rate of Interest has been fixed at 6.9375% p.a. and that the interest payable on the relevant interest Payment Date, June 24, 1988 against Coupon No. 7 in respect of U.S. \$100,000 nominal of the Notes will be U.S. \$177.92.

March 24, 1988, London
By: Citibank, N.A. (CSSI Dept.), Agent Bank

CITIBANK

BAWAG
BANK FÜR ARBEIT UND WIRTSCHAFT A.G.
(Incorporated with limited liability in Austria)
US\$100,000,000 Subordinated Floating Rate Notes due 2000

In accordance with the terms and conditions of the above-mentioned Notes notice is hereby given that the Rate of Interest has been fixed at 7.1875% per annum and that the interest payable on the relevant interest Payment Date, September 26, 1988 against Coupon No. 7 in respect of US\$10,000 nominal of the Notes will be US\$371.35.

March 24, 1988, London
By: Citibank, N.A. (CSSI Dept.), Agent Bank

CITIBANK

DP America Growth Fund
Weekly net asset value on 1/3 was US 23.23
Listed on the Amsterdam Stock Exchange

Information:
Person, Holding & Person NV
Herengracht 24, 1016 BS Amsterdam
Tel. +31-20-21188

Weekly net asset value as at 21/3
Tokyo Pacific Holdings (Seaboard) N.V.
was US 168.09
Listed on the Amsterdam Stock Exchange

Information:
Person, Holding & Person NV
Herengracht 24, 1016 BS Amsterdam
Tel. +31-20-21188

INTERNATIONAL COMPANIES AND FINANCE



£50,000,000

10 1/4 per cent. Notes due 1993

Issue Price: 101 1/2 per cent.

Hambros Bank Limited	Bankers Trust International Limited
Algemeene Bank Nederland N.V.	ASLK-CGER Bank
Banque Bruxelles Lambert S.A.	Banque Internationale à Luxembourg S.A.
Bayrische Vereinsbank Aktiengesellschaft	Chase Investment Bank Limited
Crédit Lyonnais	Die Erste österreichische Spar-Casse - Bank First Austrian Bank
EBC Amro Bank Limited	Istituto Bancario San Paolo di Torino
Sumitomo Finance International	Vereins- und Westbank Aktiengesellschaft

Westpac Banking Corporation

March, 1988

Austrian bank lifts operating results

By Judy Dempsey in Vienna

OESTERREICHISCHE LAENDERBANK, Austria's third largest bank, boosted partial operating profits by 43.9 per cent last year to Sch718.5m (\$90.5m).

Mr Gerhard Wagner, the chairman, announced yesterday that net profits for 1987 had increased from Sch181.5m to Sch195.5m. Total assets of the banking group rose by 3.3 per cent to Sch247.3m.

The most striking result was in the bank's capital ratio, which rose by 1.34 percentage points to 3.57 per cent, well on target for attaining the 4 per cent legally required by 1991.

Dr Wagner said the bank had not yet decided whether to raise its current share capital of Sch1.7m, on which it is paying out a 12 per cent dividend for the latest year.

During 1987, Laenderbank continued to reduce the state's holding, from 60 per cent to 53 per cent. This came through the issue of two tranches of shares worth a nominal Sch150m and Sch50m, as well as a secondary offering.

As part of its continued expansion programme, Laenderbank tomorrow opens a representative office in East Berlin, the main aim of which will be to facilitate business transactions and contacts.

Group cash flow increased by 42.7 per cent, to Sch1.1m from Sch719m.

Interim loss of A\$509m for Ariadne Australia

BY BRUCE JACQUES IN SYDNEY

ARIADNE AUSTRALIA, the former stock market high-flyer, yesterday disclosed one of the largest corporate losses the country has seen — A\$508.9m (US\$376.1m) net deficit for the six months to December.

The troubled investment company has taken write-offs on its holdings exceeding A\$578.2m. Unusually, it has issued a full balance sheet with its interim profit announcement. This shows a tangled web of deals including loans and put options, spreading to New Zealand and Hong Kong, which have made the group one of the hardest hit in the share market crash.

Ariadne's troubles have led to management changes at the company with Mr Bruce Judge yielding the chief executive's position to Mr Eugene Caffero, a former Chrysler president. The company's fall from grace has also attracted Mr Larry Adler's FAI Insurance to move in with a 26.5 per cent shareholding.

Yesterday's report includes a detailed view from accountant Arthur Andersen on the company's affairs. Although it contains a disclaimer that the report is not an audit, the firm says that Ariadne can be valued on a going concern basis only if it retains the support of its bankers, mainly Bank of New Zealand. It also says Ariadne cannot trade on without large asset sales.

"The directors' estimates of net realisable value assume realisation in the ordinary course of business or in an orderly fashion," the firm says. "Such values cannot be equated necessarily with the values obtained on immediate sales. Amounts actually realised in due course are dependent on market values at the time of sale."

Arthur Andersen also makes strong mention of Ariadne's heavy borrowings, pointing to debt of more than A\$1.1m in the balance sheet and commitments and contingent liabilities of a further A\$18m. "At current interest rates, this level of debt results in interest and other financing costs of approximately A\$150m per annum," it says. The interest bill in the half-year rose from A\$11.8m to A\$20.6m.

"The nature of Ariadne's assets in its investment, property and financial services segments are such that these assets will only generate significant cash flows in the foreseeable future through the sale of assets," the firm adds.

Ariadne's industrial side, principally its Repco car parts business, "is not expected to generate sufficient cash flows to service

Ariadne's debt. Accordingly, it is essential for Ariadne to sell assets in order to reduce debt to a level which can be serviced by retained business activities."

The firm says that, while Ariadne directors have decided on an orderly realisation of assets, the strategy requires the interim support of its bankers.

For some investments, Arthur Andersen expresses doubts that even written-down values could be realised.

One example given is Ariadne's 35 per cent stake in the Hong Kong-based Impulse Pacific, where a provision of A\$108m has been made but an additional loan of A\$110m remains outstanding. Another is funds provided to Judge Corporation of New Zealand, also headed by Mr Judge.

Ariadne provided A\$45m to Judge and then sold shares in the company for which it has not been paid. Arthur Andersen is investigating the transactions and Ariadne has provided A\$121m against the situation.

The overall net loss compares with profits last time of A\$97.5m and came despite growth in revenue to A\$836.2m from A\$694.6m. The result has left the company with accumulated losses totalling A\$377.7m. According to directors' valuations, shareholders' funds remain positive at A\$339.2m.

Mr Adler's interests now have three board seats, while two are held by a consortium including Bank of New Zealand, EIE, the Japanese property group, and the Australian-based Essington.

Surprise payout by Hong Kong TV group

By David Dodwell in Hong Kong

HK-TVB, the Hong Kong broadcasting and entertainment group controlled by Sir Run Run Shaw, yesterday reported after-tax profits in 1987 of HK\$408m (US\$52.3m), a 30 per cent improvement on profits of HK\$314.5m in 1986 and above most market forecasts.

Most unexpected was a special dividend of 55 cents per share, which taken together with a final dividend of 45 cents and an interim of 18 cents, makes a total for the year of HK\$1.18. This surpasses earnings per share of 97 cents and is likely to consume HK\$231m out of cash reserves amounting to an estimated HK\$400m.

The company made an extraordinary gain in 1987 of HK\$23.3m from the sale of a stake in the South China Morning Post, the local English-language newspaper group now controlled by Mr Rupert Murdoch's News Corporation.

Although it gave no explanation for the special dividend, this will provide a substantial sweetener to Mr Alan Bond, the Perth entrepreneur who has accumulated a 30 per cent stake in HK-TVB. Mr Bond learned recently that he might have to trim this holding following a government ruling against foreign ownership of local television companies.

It is estimated that Mr Bond will receive around HK\$90m in dividend payments.

TVB's profits were generated on turnover of HK\$1.33bn compared with HK\$1.13bn. About 70 per cent of the profits are understood to have been generated from television broadcasting operations which include the sale of a large number of Cantonese-language programmes to Chinese communities overseas.

The remainder of the profit was generated by TVB's entertainment activities, which include printing and publishing as well as tour operating, film production, and retailing. It is understood that these operations will have to be hived off from the main group, possibly over the course of the coming year.

NZ plans insider trading law

BY DAI HAYWARD IN WELLINGTON

NEW ZEALAND yesterday introduced plans to legislate against insider trading and improve disclosure requirements. Insider traders could lose their position in a company or, if in a stockbroking firm, be disqualified from practising. Investors suffering a loss through the activities of an insider trader will have a legal right to compensation.

Mr Geoffrey Palmer, the Justice Minister, said he did not think it was possible to eliminate insider trading completely. However, New Zealand had to lose its reputation of being "the last Wild West show."

He added: "The New Zealand market has been described by some as the last frontier of those who wish to manipulate the price of shares for their own gains. These changes are going to bring that situation to an end."

It was important to have a fair market in which people had a reasonable chance of knowing what was going on and making rational decisions.

The new laws closely follow the recommendations of the Securities Commission, which was ordered by the Government last year to investigate the operations of insider traders.

Companies are now also required to disclose their holdings when they obtain a substantial shareholding, of more than 5 per cent, in a listed company.

Mr Palmer said the reputation of New Zealand's financial markets had been damaged by some of the practices which had occurred but the new legislation would help restore confidence.

Some market observers believe that, had greater controls over insider trading been in force before October, some of the secret deals which have been revealed since the share crash would not have been possible.

Monsanto Australia disposal

By Our Financial Staff

MONSANTO AUSTRALIA, part of the US chemicals group, is to sell its commodity chemicals, plastics and resin businesses to Mr Kerry Packer's Consolidated Press Holdings.

No price was disclosed for the deal, which leaves Monsanto Australia with its agricultural chemical and specialty chemical operations. The company has ranked as one of Australia's largest chemical producers and the country's biggest exporter of chemicals.

Monsanto said the sale was part of a worldwide policy of concentrating on agricultural products and specialty chemicals while focusing development on pharmaceuticals, biotechnology, process controls and electronic materials.

The businesses bought by Mr Packer's privately held publishing and investment group will operate under the name Chemplex Australia and will be run by existing management. The sale includes Monsanto's holdings in Australian Fluorine Chemicals, Bevinex Australia and Revertex Industries (NZ).

Singapore group to make rights issue

UNITED OVERSEAS Land (UOL), a property and hotel associate of Singapore's United Overseas Bank, is seeking to raise up to S\$152m (US\$85.5m) through a one-for-two rights issue. Reuter reports from Singapore.

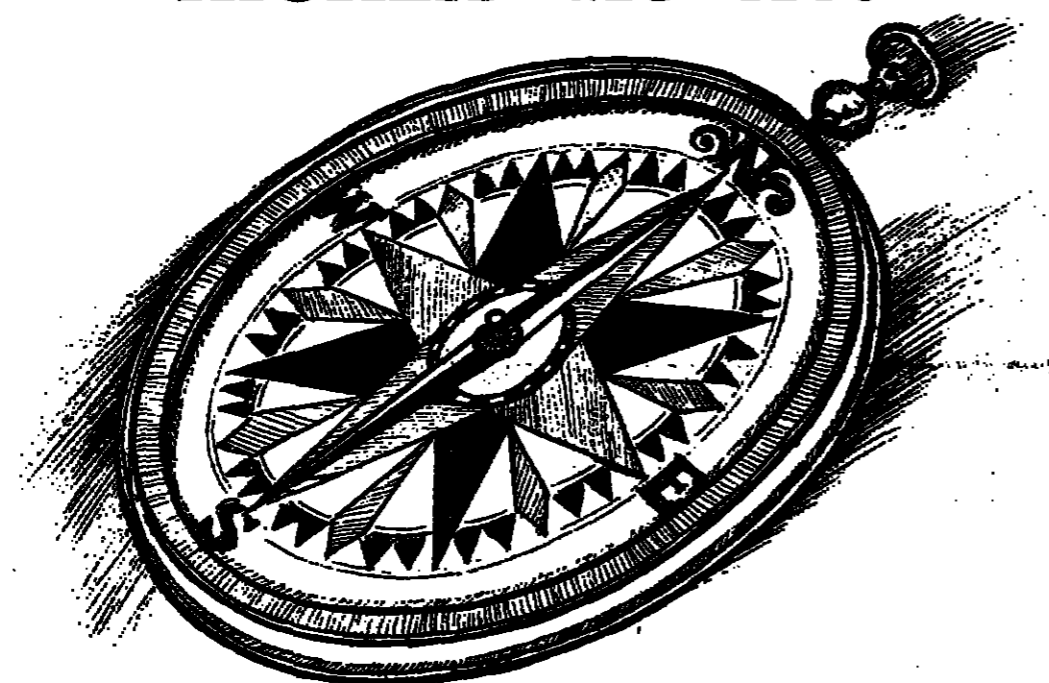
The company announced this yesterday, together with a net deficit of S\$8.44m for 1987 against profits of S\$8.46m in 1986. Turnover dropped by 22 per cent to S\$81.55m.

The rights issue is priced at S\$1.10 a share. UOL shares fell 10 cents on the news to close at S\$1.37. The company said proceeds would be used to "reduce bank borrowings and to take advantage of investment opportunities that may arise."

The offer carries detachable transferable subscription rights which entitle the holder to subscribe over a five-year period for another UOL share at S\$1.10. The rights will not qualify for the unchanged one cent dividend for 1987.

UOB and Orient Leasing of Japan, both substantial shareholders in UOL, have agreed to take up their entitlements. The balance will be underwritten.

WE SET A DIRECTION FOR HIGHER PROFITS.



OUR RESULTS ARE ON COURSE.

At Canadian Pacific, we have one basic objective: to improve long-term shareholder values through higher returns and better quality earnings.

In pursuing this objective, we have made sweeping changes that have transformed our company. We have restructured our core businesses, sharpened our business and managerial focus, and improved our financial flexibility.

Now our 1987 results are in and our initiatives have paid off. In a streamlined portfolio, a much stronger balance sheet and a significant improvement in earnings in all our core business segments.

	Consolidated income (in millions of \$00s, except amounts per share)		Full Year	
	1987	1986	1987	1986
Transportation	\$ 76.9	\$ 43.4	\$ 229.7	\$ 93.3
Energy	49.4	35.6	157.4	52.2
Forest Products	39.1	22.9	170.0	22.2
Real Estate and Hotels	11.2	11.2	48.2	43.2
Manufacturing and Other	2.5	(30.2)	36.5	(49.4)
Discontinued Businesses	-	8.7	0.7	(21.6)
Net income before extraordinary items	199.1	91.6	634.7	150.1
Extraordinary items	(164.5)	102.2	199.4	(230.4)
Net income after extraordinary items	\$ 34.6	\$ 193.8	\$ 834.3	\$ (80.3)
Earnings per Ordinary share	\$ 0.66	\$ 0.30	\$ 2.12	\$ 0.50
Before extraordinary items	\$ 0.11	\$ 0.65	\$ 2.75	\$ (0.27)

Canadian Pacific Limited
Building Lasting Values

For a copy of our 1987 annual report, write to Deputy Secretary, Canadian Pacific Limited, Southside, 105 Victoria Street, London SW1E 6QT

U.S. \$100,000,000

GW Overseas Finance N.V.

Guaranteed Floating Rate Notes Due 1994

Unconditionally guaranteed by



Great Western Financial Corporation

Interest Rate	7 1/4% per annum
Interest Period	24th March 1988 26th September 1988
Interest Amount per U.S. \$10,000 Note due 26th September 1988	U.S. \$374.58

Credit Suisse First Boston Limited
Agent Bank

United Kingdom

U.S. \$4,000,000,000

Floating Rate Notes Due 1996

In accordance with the provisions of the Notes, notice is hereby given that, for the three month period 24th March, 1988 to 24th June, 1988, the Notes will bear interest at the rate of 6 1/4 per cent, per annum. Coupon No. 7 will therefore be payable on 24th June, 1988, at the rate of US\$8,465.28 from Notes of US\$500,000 nominal and US\$169.31 from Notes of US\$10,000 nominal.

S. G. Warburg & Co. Ltd.

Agent Bank



Canada

Cdn. \$300,000,000

Interest Rate Swap

Arranged and provided by
Scotiabank Capital Markets/Merchant Banking

Scotiabank

This advertisement is issued in compliance with the requirements of the Council of The Stock Exchange

AUDAX PROPERTIES PLC

(Registered in England No. 2027379)

Placing of £7,000,000 11 per cent Guaranteed Debenture Stock 2021 "A" at £102.802 per £100 nominal payable in full on acceptance.

Application has been made to the Council of The Stock Exchange, for the whole of the above stock ("the stock") to be admitted to the Official List. In accordance with the requirements of the Council of The Stock Exchange two market makers will be offered participation in the marketing of the stock. The Guarantor of the stock is Value and Income Trust plc (Incorporated in Scotland, registered number 50366).

Listing particulars relating to the stock are available in the External Statistical Services. Copies of the listing particulars may be obtained during normal business hours on any weekday, Saturday and bank holidays excepted, until 25th March, 1988 from the Company's Announcement Office of The Stock Exchange London EC2 and up to and including 6th April, 1988 from:

Audax Properties PLC
Marble Arch House
66/68 Seymour Street
London W1

de Zoete & Bevan Limited
Ebbgate House
2 Swan Lane
London EC4

24th March, 1988

UK COMPANY NEWS

Koppers raises \$1bn to buy shareholder loyalty from Beazer

BY JAMES BUCHAN IN NEW YORK

Koppers, the Pittsburgh-based aggregates and chemicals group that is currently seeking an aggressive \$1.6bn (£871.6m) bid from Beazer of the UK, said yesterday that it had lined up more than \$1bn in financing to win the loyalty of its shareholders with a big cash pay-out.

In a statutory filing in Washington yesterday, the group said that two banks had offered to arrange a \$1.13bn credit facility and would put up \$600m themselves to help finance a special cash dividend. Koppers would not identify the banks.

The announcement, which adds credibility to Koppers' promise to make a counter-offer to stockholders and remain independent, sent Koppers stock up 5% to \$57.

Wall Street investors believe that Koppers can probably top the \$66-share offer unveiled at the weekend by a group led by Beazer, the Bristol-based aggregates and housebuilding group. Included in the group are Shear-

son Lehman Hutton, the Wall Street investment firm, and Nat-West Investment Bank.

Professional takeover speculators (or arbitrageurs), said yesterday that they believed Koppers could now finance a special cash dividend of \$38 or \$39 a share. They believe that stock in the company, which will be massively indebted because of the pay-out, will fall in value to \$15-\$20.

The offer is competitive with the current Beazer offer, said one arbitrageur. "But it is not competitive if Beazer goes to \$60, which we think it can do."

In Pittsburgh yesterday, feeling ran high among Koppers employees against the Beazer group's bid. In protest against the involvement of Shearson, a subsidiary of American Express, a group of employees cut their American Express cards in half and mailed the pieces to Mr James Robinson, chairman of the financial services group.

Pearson in talks with Spanish financial paper

BY RAYMOND SNOODY

Cinco Dias, the Spanish financial daily confirmed yesterday that it was discussing the sale of a 44.5 per cent stake in the paper with a number of European publishing groups.

The company said it was discussing the sale of a stake with Pearson, the publishing, banking and oil services group which owns the Financial Times, Hachette, the French publishing group and two other French companies it declined to name.

A spokesman for the paper, which has a circulation of 24,000

said its founder Mr Francisco Gaya wanted to sell half his 89 per cent stake in Estructura Grupo de Estudios Economicos, the newspaper's holding company.

Two Spanish entrepreneurs Mr Alberto Cortina and Alberto Alcora currently hold the balance.

It is believed that Mr Robert Maxwell, publisher of Mirror Group Newspapers, at one time expressed an interest but talks were broken off some time ago.

Plessey raises Leigh offer

BY DAVID THOMAS

Plessey has increased its friendly offer for Leigh Instruments, a Canadian defence electronics manufacturer, which is also the subject of a hostile bid from IMP, a Canadian aerospace manufacturer.

Plessey has increased its offer from C\$25.35 to C\$29.25m per preference share. With its offer per ordinary share remaining unchanged at C\$6.50, Plessey says the total value of its offer has increased from £43.8m to £45.2m.

Plessey says its offer is now higher than IMP's by C\$0.25 per ordinary and C\$2.25 per preference share. The inward investment authorities in Canada have given Plessey the go-ahead to proceed with its offer.

Plessey's amended offer requires that the aggregate of ordinary and preference shares accepted by the offer is only 80.1 per cent, as against 68.6 per cent of each class of share under the original offer.

Dobson Park lifts MS stake to 25.9%

By Clay Harris

Dobson Park Industries yesterday bought another 3.3 per cent of MS International to raise its stake to 25.9 per cent. The bitterly contested takeover battle between the two diversified mining equipment manufacturers closes tomorrow.

Dobson Park, meanwhile, last night made a formal complaint to the Takeover Panel about the role of stockbroker Citicorp Scrimgeour Vickers, which the bidder believes should be declared as an associate of the MS defence.

Mr Chris York of Scrimgeour said on Tuesday that Citicorp discretionary clients holding about 15 per cent of MS were unlikely to accept the Dobson Park bid. Mr York has followed MS closely from the days when he worked for its broker, McCaughan Dyson Capel Cure.

Although MS defence documents have quoted his anti-bid circulars, the connection has not been mentioned.

Both sides yesterday issued explanations to MS shareholders which broke no new ground. MS shares closed unchanged at 129p, 1p below the cash offer price.

Budgen the spur for B&D's growth

BY NIKKI TAIT

Barker & Dobson, the food retailer and sweets group which last month lost an ambitious £28m bid for Dee Corporation, yesterday reported pre-tax profits of £13.5m in the year to December 26.

This compares with £4.1m in the previous year, and is scored on sales up from £127.1m to £277.8m. During 1987, B&D enjoyed the first full-year contribution from the Budgen supermarket chain, which it acquired in mid-1986. In 1986, Budgen's figures were included for only five months.

During 1987, the food retailing operations made operating profits of £11.5m on sales of £243.5m

(£243.5m), with an operating margin of 4.87 per cent. B&D undertook 21 major refurbishments in 1987, and opened three new stores.

On the confectionery side, there was an operating profit of £1.62m (£1.41m) on sales of £38.7m (£34.1m). The pre-tax figure also takes in £1.87m of property profits.

The interest charge last year was £547,000 (£484,000). At the year-end, gearing ran to 52.8 per cent - but that partially reflected some refundable payments made in connection with the Dee bid. The Dee-related factors aside, gearing would have run out at about 16 per cent. Tax is £2.47m (£247,000).

Below the line, Barker & Dobson bears a £2.7m extraordinary charge - £2.43m reflecting the costs of the Dee bid. The final dividend, however, goes up from 1p to 2p, making 3.5p (1p) for the year. The year-end is being changed to end April.

● comment

Having forecast at least £13m before tax during its battle for Dee, Barker & Dobson caused few surprises yesterday. Most analysts agree that Mr Fletcher still has plenty of scope in rolling out the Budgen programme, and

another 28 full refurbishments are likely in the current year - in addition to ten new stores. In comparable stores, meanwhile, volume gains accounted for the bulk of last year's 8.8 per cent rise, with price inflation chipping in only 1 per cent. Where B&D goes next, however, is a moot point. The availability of potential store sites is not seen as a major problem at present, but whether extending Budgen will contain Mr Fletcher's energies is more doubtful. Although he plays down immediate speculation, the experience of the Dee bid is unlikely to have dented ambitions and shareholders can probably be guaranteed an eventful ride.

Midsummer pays £6.6m for Bruce's Brewery

By Lisa Wood

Midsummer Leisure, the rapidly expanding public house, snooker club and discotheque business, is buying Bruce's Brewery, the small chain of pubs in the London area with names like Frog & Firkin and Flounder & Firkin, for £6.6m cash.

Bruce's Brewery, set-up in 1979 by Mr David Bruce and Mrs Louise Bruce, was put on the market last month.

The 11 pubs and one site for development were put out to tender, with the brand names Bruce's Brewery and Dogboiler - its potent beer - offered separately. Bids were due in by April. Midsummer Leisure - which last year made an unsuccessful informal takeover approach to Boddington, the Manchester brewer - made its pre-emptive move for the pubs, plus the brand names, which was accepted by Mr Bruce.

Midsummer has more than 130 outlets, and reported a pre-tax profit of £2.8m on turnover of £17.5m for the year ended September 30 1987. Bruce's Brewery, for the year ended March 31 1987 showed a pre-tax profit of £151,000 on turnover of £2.97m. The value of the net tangible assets acquired, based on the March 31 1987 accounts, is £2.8m.

Peachey buys EPIC stake

Peachey Property Corporation, which raised its contested cash offer for Estates Property Investment Company (EPIC) from 240p to 260p a share on Monday,

announced yesterday it had bought a 25 per cent stake in EPIC from London Securities, itself an erstwhile predator, writes Andrew Hill.

The shares were already committed to the Peachey bid, but the sale gives Peachey ownership of about 33.1 per cent of EPIC's share capital. Under the rules of the Takeover Code it also means Peachey must declare the offer unconditional once it has acquired 50 per cent of EPIC.

A total of about 39.2 per cent in equity and acceptances is committed to the Peachey offer, which closes on April 12.

Within half an hour of Peachey's announcement, EPIC reported that it had "reached an advanced stage" in discussions with a company prepared to offer a higher price. Peachey's final increased offer values EPIC at £83.4m. On Monday EPIC advised shareholders to wait for the outcome of talks with potential offerors.

EPIC shares rose 3p to close at 265p and Peachey eased 1p to 412p.

Rotork falls to £5.6m

DISAPPOINTMENTS at Rotork's instrumentation subsidiary Protech led to reduced pre-tax profits of £5.6m for the year ending December 31, against £6.3m in 1986, writes Andrew Hill.

The Bath-based manufacturer of valve control equipment, machine tools and cables said the volume generated by Protech's distribution of Toshiba's Tostec range of computer instrumentation failed to compensate for the completion of work on two nuclear contracts.

Poor performance from Ludlum Sysco, the process engineering operation, Jacques, undersea cable and hose manufacturer,

and Evans, maker of laminating machinery, also contributed to the drop in profits.

Turnover rose slightly to £34.2m (£33.2m). Earnings per share fell to 12.4p (13.9p).

Mr Jeremy Lancaster, chairman, said he believed the strategy of integrating Rotork Controls' sales network with the marketing efforts of Protech and Ludlum Sysco would bring considerable benefits in the next few years.

The proposed final dividend of 3.85p, making 7.1p (6.5p) for the year, reflects the company's cautious confidence in 1988.

FINANCIAL NEWS FROM B.A.T. INDUSTRIES



B.A.T. INDUSTRIES
...A RECORD
16.90p DIVIDEND

PRELIMINARY RESULTS

£1 = \$1.88 at 31.12.87 (\$1.48 at 31.12.86).

	Year to December 1987	Year to December 1986	Change
GROUP TURNOVER	£17,208m	£19,167m	-10%
PRE-TAX PROFIT	£1,394m	£1,393m	-
EARNINGS PER SHARE	52.78p	53.51p	-1%
DIVIDEND PER SHARE	16.90p	14.30p	+18%

Increased dividend underlines Group strength. • Pre-tax profit affected by exchange rate movements (£192m) and stock market collapse (£102m). • Turnover from continuing businesses 5% higher in constant currencies. • Strong cash flow: net debt/equity down to 10%. • In local currencies tobacco did well - with profit increases of 19% at Brown & Williamson and 17% at BATCo. Export success in Japan. • Argos star performance with sales up 23%. Better Horten results. • Marshall Field's raises profits with sales exceeding \$1 billion. • Eucalyptus pulp operations do well but higher prices affect paper profits. • Strong premium growth at Eagle Star: significantly improved underwriting results but profits down after reduced investment gains. • Allied Dunbar another record year, profits doubled at Canada Trustco.

B.A.T. INDUSTRIES
FINANCIAL SERVICES • RETAILING • PAPER • TOBACCO

Full financial statements will be delivered to the Registrar of Companies and carry an unqualified audit report. The full results are being posted to shareholders and copies are available from the Company Secretary, B.A.T. Industries p.l.c., Windsor House, 50 Victoria Street, London SW1H 0JN.

DIVIDENDS ANNOUNCED

	Current payment	Date of payment	Corresponding div	Total for year	Total last year
Aurora	2.15	-	1.25	2.75	1.75
Barker (Charles)	2.11	May 26	2	3.2	3
Barker & Dobson	21	-	1	3.5	1
Barrat Derr	2.79	May 27	2.54	5.33	8.98
BAT Industries	10.4	-	8.5	18.9	14.3
Breedon	4.35	May 27	4	6.35	5.82
Britannia Arrow	3.2	May 21	3.2	5.5	5
Britannia Ass.	27.5	-	24.5	42	35.5
British Molins	6.1	May 31	5.25	11.35	6.5
CLF Holdings	1.167	May 4	0.9	1.74	1.35
Campari Int	51	May 28	2.5	6.5	3
Christy Hunt	0.33	June 30	-	3.6	0.4
Computer People	2.4	May 27	-	2.25	-
Cundell Group	2.25	May 29	-	3.3	2.7
Delaney Group	2.21	May 23	1.3	3.3	1.315
Early's of Wit	1	-	1	1.315	1.315
Falcon Inds	0.757	-	-	0.75	nil
Gordon Russell	4	-	6	9.9	8.28
Hepworth Ceramic	6.31	-	5.18	1.13	1.75
Matthews (Bern)	1.13	-	1.13	1.25	1.75
Meggitt Holdings	1.157	June 10	1.25	2.25	1.75
Northern Engin.	3.61	-	3.6	5.25	5.25
P.E. International	2.47	May 31	2.4	3.6	3
Randworth Tst	1	May 27	-	3.28	2.8
Restekill Group	2.08	-	1.78	7.1	6.5
Rotork	3.85	-	3.5	10.5	10.5
Schroders	10.5	-	9	6	6
Silkeborg	5	May 16	3.75	6	5.5
Stag Furniture	4.25	May 19	0.25	0.59	0.28
Sunleigh Elect	0.287	-	3	2.5	4.5
Tibbett & Britt	3	May 24	2.45	5.6	4.3
Tootal Group	2.5	May 19	2.45	5.5	5.5
Trade Indemnity	3.4	May 19	5.5	9	8
Usher (Frank)	2	July 4	-	-	-
Woolworth Bldgs	61	-	-	-	-

Dividends shown pence per share net except where otherwise stated. *Equivalent after allowing for scrip issue. †On capital increased by rights and/or acquisition issues. ‡USM stock. §Unquoted stock. ¶Third market. † 9p total for 16 month period forecast.

GRANVILLE

SPONSORED SECURITIES

High Low	Company	Price	Change	Div (p)	Yield	P/E
236	133	As Brit. Ind. Ordinary	195	0	8.9	4.6
237	145	As Brit. Ind. GUS	169	0	10.0	5.1
41	25	Amalgamated and Rhodes	29	-	1	1.5
142	40	BBS Design group (USM)	50	0	2.1	3.7
186	108	Barton Group	150	0	2.7	17.0
195	95	Bray Technologies	120	0	4.7	34.1
201	130	CCI Group (USM)	260	0	11.5	44.6
147	99	CCI Group 11% Conv. Pref	131	0	15.1	1.5
171	130	Carburetor Ordinary	132	-1	5.4	41.3
204	91	Carburetor 7.5% Pref	101	0	10.3	10.2
151	67	George Baze	249	-1	3.7	1.8
143	40	ICI Group	61	0	0	0
154	59	Jackson Group	92	-2	3.4	3.7
780	500	Multi-Rescue NW (USM)	338	0	10.4	31.3
91	45	Robert Jackson	45	0	0	2.4
124	30	Servotek	124	0	5.5	44.3
224	67	Torley & Carole	190	0	6.4	33.9
71	32	Trevelyan Holdings (USM)	67	0	2.7	41.7
255	190	W.S. Yates	263	-1	16.6	63.5

Securities designated (USM) and (USM) are deals in subject to the rules and regulations of The Stock Exchange. Other securities listed above are deals in subject to the rules of FIMBA.

Granville & Company Limited
8 Lovat Lane, London EC3R 8BP
Telephone 01-621 1212
Member of FIMBA

Granville Davies Coleman Limited
8 Lovat Lane, London EC3R 8BP
Telephone 01-621 1212
Member of the Stock Exchange

UK COMPANY NEWS

WEAK DOLLAR AFFECTS US EARNINGS AND STOCK MARKET CRASH HITS EAGLE STAR

BAT shows marginal rise to £1.4bn

BY NICK BUNKER

THE TOBACCO-based multinational BAT Industries yesterday unveiled only a marginal rise in its annual pre-tax profits to £1.394bn, but brushed aside doubts of its ability to take over Farmers Group, the US insurer.

BAT has launched a \$4.5bn (£2.5bn) contested tender offer for Los Angeles-based Farmers, in an attempt at strategic expansion into US financial services.

Mr Patrick Sheehy, chairman, dismissed suggestions that the group faced resistance from state insurance regulators. Queries raised by state insurance commissioners were "fair and reasonable" and had been expected. "We anticipate that we will be able to answer them to the complete satisfaction of the states".

Worldwide, BAT's pre-tax profits in the 12 months to December 31 were up a mere £1m on the 1986 figure, largely because a

weak dollar hit its US earnings and last October's stock market crash hurt the results of Eagle Star, its UK composite insurance subsidiary.

In what appeared to be another move aimed at boosting confidence in its capacity to acquire Farmers, the group laid a heavier than usual stress on its strong balance sheet and the positive cash flow from its tobacco operations.

Though BAT's cigarette market share in the US fell further, from 11.7 per cent to 11 per cent, tobacco continued to contribute 50 per cent of its £1.48bn trading profits, the same proportion as in 1986.

Mr Sheehy said net interest charges in 1987 had fallen from \$88m to \$1m, and gross borrowings were down to \$4 per cent of shareholders' equity, or 10 per cent after taking cash balances

into account. The debt/equity ratio was now "the lowest since 1989," when BAT was starting to diversify out of tobacco via a string of acquisitions.

After a tax charge almost unchanged at \$26m (38 per cent) and minorities of \$81m, profits attributable to shareholders were £787m. Earnings per share dropped one per cent to \$2.78p, but BAT said its "underlying strength" enabled it to raise the total dividend 16 per cent to 16.5p.

The biggest snag for BAT was the weakening US dollar. If end-1986 exchange rates had been maintained, pre-tax profits would have been £192m higher. The US made up 27 per cent of group turnover of £17.2bn (£19.17bn).

Pre-tax profits fell in BAT's paper and retailing operations, both of which have heavy US exposures. Paper contributed

\$208m (£217m), while retailing was down \$211m to £203m.

The second factor depressing the pre-tax earnings was a drop from \$262m to £265m in profits from financial services. At Eagle Star, pre-tax profits grew only three per cent to £210.6m, partly due to a drop from £213.2m to £205.9m in its total investment returns due to October's equity market crash.

The crash meant that over the year as a whole its non-life insurance funds declined by £31.6m, but this meant a fall in pre-tax earnings because Eagle Star takes unrealised capital gains and losses into its profit and loss account.

Eagle Star was also hit by a net £16m of claims from last October's hurricane, and by the need to add £22.1m to reserves for its liability insurance business.

See Lex

Takeover operations strengthen Schroders

By Gary Harris

Schroders, the financial services group, increased its disclosed after-tax profits by 29 per cent to £27.12m in 1987. Mr George Mallinckrodt, executive chairman, described the result as "a considerable achievement in a year of volatile market conditions".

Disclosed earnings per share matched pre-tax growth with a 29 per cent rise to 96.3p (97p). An unchanged final dividend of 10.5p gives a total 22 per cent higher at 10.5p (12.5p).

The profits increase from £20.97m, after transfers to inner reserves, reflected a strong performance by corporate finance operations, especially in cross-border mergers and acquisitions. Schroder Wagg, the merchant bank, also increased its share of the UK mergers and acquisitions market.

Funds under management rose by £500m to a record £15.5bn, an advance limited by the decline of the dollar. The weakness of the US currency reduced the group's disclosed overall profits by £2.8m.

Concentrating capital markets operations on equity and equity-linked issues, Schroders achieved increased underwriting profits despite a 22m loss on the BP issue.

Securities operations, both in the UK and overseas, lost money, although the Hong Kong branch gained market share, mainly in the flight-to-quality after the October crash. Significant costs were incurred in Japan in the run-up to Schroders' forthcoming Tokyo Stock Exchange membership at the end of June.

In the UK, Schroders has decided to concentrate on research, market-making and trading in smaller companies, especially those whose flotation it has sponsored. Treasury operations have been scaled back to provide the post-crash interest rates, and Wertheim Schroder, the US-based investment bank partnership, made a material contribution to profits.

Sales and swaps of problem overseas loans, as well as further provision, reduced expense - net of provisions - to 6.6 per cent of total assets, or about £18m. This compares with a level of more than 2 per cent at the previous year-end.

● comment

Is Schroders too good for its own good? Disclosed profits below forecasts is being taken, and unexpected, as evidence that more than usual has been salted away against a less happy result for 1988. After all, this is one purpose of the inner reserves for which Schroders will fight longer than most even on a fall to \$20m post-tax, however, the prospective p/e of 11.4 is the highest in the sector. This reflects confidence in the ultra-conservative approach as well as disclosed asset backing of close to 27 a share, against an unchanged market price of 96.3p. But family control excludes bid speculation, and organic performance alone is unlikely to keep the shares at a premium. Schroders needs somehow to repeat the earnings-enhancing effects of the 1986 insurance disposal and 1987 entry into the Wertheim partnership. Perhaps it could apply those cross-border M&A skills to its own case, with special attention to continental Europe, the only area where it could be accused of being too thin on the ground.

Stag Furniture doubles profit

Doubled pre-tax profits are reported by Stag Furniture for 1987 from £755,000 to £1.55m on turnover up 11 per cent from £28.5m to £31.7m. An increased final dividend of 4.25p (3.75p) is recommended, for a total of 6p (5.5p).

Mr Patrick Bedford, chairman, said both the Stag and Jaycee brands had increased their market share.

Delaney grows 72%

Delaney Group, Birmingham-based furniture manufacturer, pushed pre-tax profits for 1987 to £2.7m, a 72 per cent rise on the retained figure of £1.58m for 1986. Turnover rose to £20.51m (£14.47m restated).

The directors have recommended a final dividend of 2.5p (1.8p) making a total for the year of 3.3p (2.7p).

Gordon Russell

Another strong year at Gordon Russell Furniture saw pre-tax profits rise 45 per cent from £1.81m to £2.62m on turnover of £16.61m (£24.41m).

The company manufactures office furniture.

A final dividend of 4p is proposed, making a total of 6p.

Woolworth surges £32m but warns on conditions ahead

BY MAGGIE URRY

A WARNING of tougher competitive conditions in UK retailing accompanied Woolworth Holdings results for the year to January 30.

Mr Geoffrey Mulcahy, group chief executive, announced a profit before tax and exceptional items of £147.2m, up from £115.8m, and said "we are now entering an era when trading conditions across the retail sector will be tougher." However, he was confident that Woolworth would be one of the winners.

He said that Woolworth would be taking competitive action to increase market share and strengthen its brands. It would also cut costs, make better use of its retail space and develop new businesses.

During 1987-88, the fifth year since the current management

took over at Woolworth, sales across the group rose by 18.8 per cent to £2.17bn and trading profit by 25.3 per cent to £188.4m.

Mr Mulcahy said that all parts of the group increased profits and the retail operations expanded their market share. B & Q, the out-of-town do-it-yourself chain, raised trading profits by 32.3 per cent to £60.2m. Profits at Comet, the electrical chain, rose from £17.4m to £20.1m despite difficult trading conditions as overstocked retailers cut prices.

In the high street, the Woolworth chain made a profit of £45.1m, up 16.5 per cent, despite a 10 per cent reduction in sales area as space was put to better use. Superdrug, acquired a year ago, contributed £13.0m to profits in the nine months up to the year end. The two further acquisitions,

Tip Top and Share Drug, are now being integrated with Superdrug.

Mr Mulcahy said the group's property portfolio was now worth over £800m, with the budget change in the capital gains tax base date to 1988 worth £100m. Profits from the property businesses totalled £52.4m (£49.4m). They included a first time £6.3m from development.

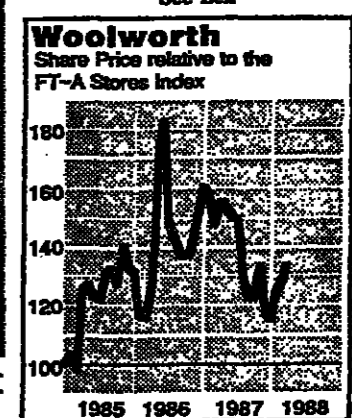
An exceptional credit of £29.8m was the balance of sale and lease-back proceeds and a 25m cost involved in converting some Woolworth space into Superdrug stores. Higher debt levels pushed up the interest charge to £26.2m (£31.1m).

After tax of £37.6m (£30.5m) earnings per share on a fully diluted basis, and excluding the exceptional item, rose 13.3 per cent to 23.9p (£21.1p). A final dividend of 6p net is proposed giving a total for the year of 3p (5p).

See Lex



Geoffrey Mulcahy, chief executive (left) and Sir Kenneth Durheim, chairman: group property portfolio now worth over £800m.



Hodgson pays CWS £8m for six funeral businesses

BY ANDREW HILL

Hodgson Holdings, the UK's second largest funeral director, has bought six Scottish funeral businesses from the Co-operative Wholesale Society for £7.8m.

The purchase will be funded by a £20m share placing, which will also provide cash for further small acquisitions later in the year.

The Monopolies and Mergers Commission told the Co-op, the UK's largest funeral company, to sell the businesses, which it had acquired from House of Fraser last June.

Mr Howard Hodgson, chairman of USM-owned Hodgson, outlined about 30 interested parties, including quoted rivals Great Southern, Group, and Kanyon Securities. It is controlled and managed by USM.

The acquisitions greatly increase Hodgson's market presence in Scotland, and boost the number of funerals the group can perform in a year to about 36,000, compared with 27,000 at the October year-end.

The conditional placing of new ordinary and convertible preference shares will repay existing borrowings and provide the group with about £2m cash to spend on further acquisitions.

Four funeral directors were bought from the Co-op: Gordon & Watson in Aberdeen; Strang & McLagan in Perth and Craig, JC Williamson in Perth; and William Scott in Perth.

On news of the placing, Hodgson shares closed down 12p last night at 239p.

Jones Shipman profits setback

Jones & Shipman, manufacturer of high precision machine tools, announced yesterday a sharp fall in pre-tax profits to £222,000 for the year to end December 1987 from £2.3m the previous year.

The company attributed the fall to a lower level of demand in the machine tool industry and to continuing costs incurred in developing a new range of products to operate under electronic control systems.

Mr Frank Brooks, chairman, said the development programme was vital to ensure the company continued at the forefront of grinding and honing machine tool technology.

Approximately £2m of development costs was charged against profits this year and a similar amount would be required in 1988.

The directors recommended a final dividend of 3p per ordinary share, making a total for the year of 4.15p, unchanged from 1986.

Mr Brooks said he would retire from the board with effect from the end of the forthcoming Annual General Meeting.

Mr Leonard Weaver was co-opted to the board on March 21st non-executive director and chairman designate.

Cundell advances by 33%

AFTER a year of growth and substantial change Cundell Group reported a 33 per cent increase in pre-tax profits, from £2.06m to £2.74m. The company, which makes corrugated packaging, came to the market last April.

A dividend of 2.5p is recommended for the year. Earnings rose from 10.9p to 11p.

Turnover rose to £34.9m (£30.82m) and sales for the first quarter of 1988 were ahead of the corresponding period.

DC GARDNER GROUP plc

(Registered in England and Wales under the Companies Act 1985 Number 2379693)

Placing by

BARCLAYS de ZOETE WEDD

L I M I T E D

of 1,282,252 Ordinary shares of 5p each at 140p per share

SHARE CAPITAL

Authorised	Issued, and now being issued, fully paid
£400,000	£280,000
Ordinary shares of 5p each	

DC Gardner Group plc is an international banking consultancy, whose principal activities are the provision of training and other consultancy services to the banking sector in the UK and overseas.

Particulars relating to the Company are available in the Edel Statistical Services and copies of the Prospectus may be obtained during normal business hours up to and including 6th April, 1988 from:

DC Gardner Group plc
5-9 New Street
London EC2M 4TP

Barclays de Zoete Wedd Limited
Ebbgate House
2 Swan Lane
London EC4R 3TS

de Zoete & Bevan Limited
Ebbgate House
2 Swan Lane
London EC4R 3TS

and during normal business hours, up to and including 31st March, 1988, from the Company Announcements Office, The Stock Exchange, 46-50 Finsbury Square, London EC2A 1DD.

24th March, 1988

NEW ISSUE

This announcement appears as a matter of record only.

FEBRUARY 1988



CLAL FINANCE NV

Incorporated with limited liability in the Netherlands Antilles

US\$20,000,000

GUARANTEED FLOATING RATE NOTES 1995

Payment of principal and interest unconditionally and irrevocably guaranteed by

CLAL (ISRAEL) LTD

(Incorporated with limited liability in Israel)

ISSUE PRICE 100%

Managers

Bank Hapoalim B.M.

Bank Leumi le-Israel BM

Israel Discount Bank Ltd

Principal Paying Agent

Bank Hapoalim (Switzerland) Ltd

Notice to Holders of
BCE Inc.
(formerly Bell Canada Enterprises Inc.)

CAL \$100,000,000
100% Series 2 Notes due 1998
CAL \$300,000,000
10% Series 2 Notes due 1992

Notice is hereby given that:
1. Effective 1st January 1988, Bell Canada Enterprises Inc. has changed its name to BCE Inc.
2. The above mentioned Notes will remain listed on the Luxembourg Stock Exchange under the company's new name followed by the previous name (i.e. "BCE Inc. (Bell Canada Enterprises Inc.)"). Each new notice to Noteholders will contain both names.
3. The Notes will not be stamped nor exchanged for new notes.
4. A legal notice, as well as the amendments to the statutory documents, will be filed with the Luxembourg Stock Exchange.

NOTICE ON LUXEMBOURG STOCK EXCHANGE
NOTICE ON LUXEMBOURG STOCK EXCHANGE

Notice
to the holders of the outstanding

U.S. \$100,000,000
8 1/4 per cent. Guaranteed Bonds Due 1993

FLETCHER CHALLENGE FINANCE (OVERSEAS) LTD.

Notice is hereby given to the holders of the above Bonds that, at the Meeting of such holders convened by the Notice of Meeting published in the Financial Times and the Luxembourg Wort on 23rd February, 1988 and held at 11.30 a.m. on 17th March, 1988 at the office of Linklaters & Paines, Barrington House, 59-67 Gresham Street, London EC2V 7JA, the Extraordinary Resolution set out in such Notice was duly passed. Accordingly the substitution of Fletcher Challenge Finance Netherlands B.V. for Fletcher Challenge Finance (Overseas) Ltd. as issuer, the modification of the Terms and Conditions of the Bonds and the Fiscal Agency Agreement in respect of the Bonds and the release of Fletcher Challenge Finance (Overseas) Ltd. from its obligations under the Bonds and under the Fiscal Agency Agreement referred to in such Notice have been made with effect from 17th March, 1988.

24th March, 1988

Fletcher Challenge Finance (Overseas) Ltd.

UK COMPANY NEWS

Plastics and heating help boost Hepworth Ceramic

BY MICHAEL SMITH

Hepworth Ceramic, the heating and building products company, yesterday announced that pre-tax profits rose 47 per cent to £50.23m in 1987. Earnings rose 24 per cent from £17.19p to £12.4p.

The company also announced plans to start making quality facing bricks through a £10m investment in a disused factory in Ellistown, Leicestershire. It is aiming for revenue of £10m in 1989 and a 1 per cent share of the market.

Hepworth, as the company will be called after approval at the annual meeting, increased sales by 15 per cent from £362.42m to £415.4m in 1987. Leaving aside companies sold or bought during the year, real growth was about 10 per cent, with volume gains accounting for about 8.5 per cent.

Mr Sinclair Thomson, chief executive, said that about half of the £15m growth in pre-tax profits was organic, the rest came from contributions from acquisitions less disposed companies.

Profits from clayware and sands, the largest two divisions, were static at £23.7m and £12m, but refractories made £10m - £4m more than 1986, and plastics

surged from £1.5m to £4.1m. Plastics enjoyed buoyant market conditions and increased market share. Refractories were helped by a £200,000 contribution from acquisitions and by the strong performance of British Steel, which takes about 30 per cent of output.

The year started with £7m debt and ended with £40m of cash. Mr Thomson said the cash from disposals and acquisitions balanced each other. The turnaround resulted from about £20m of increased profits, £20m of improvements in working capital, including stock reductions, and £7m of miscellaneous.

Following the acquisition of Henderson Group, Hepworth will have debt of about £40m. Year-end gearing is likely to be less than 25 per cent, he says.

An extraordinary charge of £1.94m was mainly closure costs. Hepworth announced a final dividend of 8.5p (5.15p) to make a total of 9.9p (8.25p).

comment

The flat performance of the sands and claywares divisions

would have been a setback two years ago, but yesterday the company could shrug off its two largest divisions' stagnation and see its shares rise 8p to 250p. The market was much more interested in plastics and heating, the areas where the management, in place for 18 months, is showing its value. Improved marketing and stripping out of overheads was behind the dramatic improvement in plastics and the benefits will continue into this year, making £6.5m achievable. But it was the heating division's performance which warmed analysts' hearts. Its eight-month contribution of £3.7m converts into a six-month contribution of £4.7m. The Henderson acquisition will be rather more expensive but Mr Thomson says there will be no dilution even in the first year. Assuming Henderson merely washes its face this year the City expects at least £7m, putting the shares on a p/e of about 10. That leaves little room for outperformance in the next few months but the shares would start to move if Hepworth could demonstrate quick progress on Henderson.

The situation - certainly the proximity of the combatants - must be without parallel. Indeed, visitors to Framlington have the curious experience of finding in the central reception area details of the bid sitting alongside publicity material for the group's investment and unit trusts.

True, City bust-ups are invariably complex and insular, involving strings of allegiances in a closely-knit community. Seldom, however, does brother attempt to attack sister. The relationship between Framlington and Throgmorton is clear enough. Framlington was born in the late 1980s when partners in stockbroker Laurence Prust, including Mr Stuttaford, formed a unit trust company. For 15 years, this business grew nicely - particularly on the back of a higher public profile in the mid-1970s, when Dewe Rogerson's Tim Miller stepped on board as marketing director. However, by the mid-1980s the Laurence Prust links were posing a problem, despite the fact that some Framlington shares had been placed out on the ISM.

UP ON THE seventh floor of a

Finsbury Square office block sits Mr Bill Stuttaford, managing director of the medium-sized but well-respected fund management group, Framlington. A few steps along the corridor are his colleagues Paul Loach and Bob Seabrook, fellow directors of Framlington but also on the board of Throgmorton Trust, a £327m investment trust.

The twist is that Throgmorton is bidding £66.8m for Framlington, and Framlington, as its statement made clear yesterday, does not like it.

The situation - certainly the proximity of the combatants - must be without parallel. Indeed, visitors to Framlington have the curious experience of finding in the central reception area details of the bid sitting alongside publicity material for the group's investment and unit trusts.

True, City bust-ups are invariably complex and insular, involving strings of allegiances in a closely-knit community. Seldom, however, does brother attempt to attack sister. The relationship between Framlington and Throgmorton is clear enough. Framlington was born in the late 1980s when partners in stockbroker Laurence Prust, including Mr Stuttaford, formed a unit trust company. For 15 years, this business grew nicely - particularly on the back of a higher public profile in the mid-1970s, when Dewe Rogerson's Tim Miller stepped on board as marketing director. However, by the mid-1980s the Laurence Prust links were posing a problem, despite the fact that some Framlington shares had been placed out on the ISM.

Mr Stuttaford, wearing his

Nikki Tait looks at the background to Framlington's defence against Throgmorton

The scene of a serious family bust-up

FRAMLINGTON LOOKS AT OTHER OPTIONS

Directors of Framlington, the fund management group, yesterday said that they had considered Monday's £66.8m offer from Throgmorton Trust, but decided not to recommend it.

"In view of the interest shown in Framlington by other parties, the board believes that the interests of shareholders, employees and clients would be best served by a completion of the evaluation of other options which has already started," said the statement.

The three Framlington directors who are also on the board of Throgmorton Trust took no part in the decision.

Yesterday, Mr Paul Loach, a director of Throgmorton, said the trust was pleased that there had not been an outright rejection and claimed that the offer remains "very good in terms of price".

Throgmorton announced that it has acquired a further 150,000 ordinary shares in Framlington. It now owns 2,689m ordinary shares or 9.1 per cent. It also owns 4m convertible preference shares, giving it a fully diluted holding of 15.3 per cent.

Framlington hat, remembers being visited by one Oxford college who wanted a fund manager; all he could offer was unit trusts.

Another pension fund turned up on Laurence Prust's door-step and specifically asked for a unit trust portfolio.

Moreover, the pre-Big Bang marriage whirl was underway, and Laurence Prust, not unnaturally, saw the advantages. After talks with a number of potential partners, it came to an agreement with Credit Commercial de France, the large nationalised French banking group.

CCF took control of the institutional equity/corporate finance side, and acquired a 28.8 per cent interest in Framlington. Into Framlington went Laurence Prust's discretionary funds - effectively doubling funds under management to £600m. The orthodox stockbroking business remained a separate partnership.

Then, a year later, Framlington was approached by Throgmorton Investment Management Services (TIMS), a privately-owned fund



Bill Stuttaford - no quarrel about the logic

admits that the old style is informal, offering a good deal of autonomy and responsibility right down the line. TIMS politely describes the business as "under-managed", implying scope for wringing additional returns through a more formalised structure and tighter financial controls.

Way back in the summer, when these problems were already evident, Morgan Grenfell subsidiary Phoenix Securities was called in to advise. Then the crash intervened, only for matters to hot up again as CCF confirmed that it was "reviewing" its Framlington holding in January.

The bid by Throgmorton on Monday is clearly a pre-emptive move - making clear TIMS' preferred solution. Equally, Framlington's rejection is scarcely a surprise: Mr Stuttaford would like Phoenix to battle in the hope that a mutually acceptable third party purchaser can be found. A

number of expressions of interest, he says, have been received. Unfortunately, such solutions - as Mr Stuttaford accepts, would need TIMS' support - and that may be hard to win. Throgmorton Trust, says Mr Loach bluntly, likes an ownership stake in its management company. "We don't want to be part of a big group - we value Framlington's independence."

Inevitably, given the overwhelming presence of practised financial hands, everyone has cards up their sleeves. If ownership of Framlington changes, three of Throgmorton trusts can change their managers - posing the possibility that £550m of Framlington's £1.55bn funds could walk out the door.

Framlington, equally, can claim that part of the group's value is a happy fund management team; hints of possible staff defections now hang in the air.

So what are the possible outcomes? If an alternative price were high enough, Throgmorton might feel obliged to give way. But its own offer - worth 192p a share - suggests an exit multiple of perhaps 23 times analysts' forecasts of earnings in the year to June 1988. Some analysts are doubtful about how much further a rival suitor might wish to go in these markets, although the Framlington price, up 8p at 199p, has not ruled out the idea.

But the answer may really rest with CCF and its key block of shares. Yesterday, the French company was not commenting, although it is likely to make its position clear fairly soon. The one point on which all parties agree is that a public brawl helps no one - not the employees, not the shareholders, and certainly not Framlington's clients.

Rentokil advances to £38m

BY FIONA THOMPSON

Rentokil, the environmental services and property care group, yesterday reported a 20 per cent increase in 1987 pre-tax profits from £31.27m to £37.59m. Earnings per share rose 24 per cent to 11.85p (9.5p).

Currency fluctuations held back profits by £1.4m for the company, which operates in 36 countries. Profits from UK companies totalled £23.24m while the overseas businesses contributed £14.35m.

By division, the bulk of profits - £22.73m - came from environmental services, up from £23.33m in 1986. This includes the provision, on a one-off or renewable contract basis, of a number of services to industry and commerce. These include pest control, office cleaning, hygiene services - ranging from unblocking drains to installing electric fly

killers, Sanitact, which disposes of sanitary towels, and Sharps, which collects and incinerates surgical instruments; and the supply and maintenance of plants and water.

The property care division, which includes woodwork and dry rot treatment, damp proofing, timber preserving, insulation and insurance activities, contributed £4.36m (£2.94m).

While the contribution to profits of the eight companies acquired in 1987 was fairly small, the 20 companies bought in 1986 contributed about £1.5m.

Turnover rose from £166.9m to £174.01m. A final dividend of 2.075p makes a 3.275p (2.8p) total.

comment

These results were pretty

much in line with City expectations and the shares closed up down at 198p. Property care profits - after substantial rationalisation of UK operations - sharply improved from the difficult patch in 1986/87 following the virtual loss of the local authority grants. Margins are edging ahead in environmental services and although pest control in the UK is reasonably mature, there are strong growth prospects in the Sanitact and Sharps disposal businesses. With net cash of just under £20m, Rentokil will be keeping a keen eye out for acquisitions. Overseas the scope for expansion continues but so does the battle with currencies, a not insignificant worry. Pre-tax profits forecasts of £44m for this year produces a prospective p/e of about 14, a good premium to the market.

Sluggish Aurora lifts dividend

BY DAVID WALLER

Aurora, the Sheffield-based engineering group, reported a £455,000 increase in pre-tax profits to £11.8m. Turnover rose by £698,000 to £112.08m.

The dividend for the year is to be raised by 57 per cent to 2.76p following a 2.15p final payout, reflecting what the company termed a "more progressive" dividend policy. Earnings per share advanced from 1.85p to 2.26p.

Trading profits rose by just £25,000, to £11.48m. Mr Andrew Wallis, finance director, said the sluggishness of the growth was in part attributable to problems at Osborn-Musket, the company's cutting-tool subsidiary.

Fierce competition and cost-cutting measures had combined to reduce profits by almost £1m, he said.

The order book is now 18 per

cent higher than it was a year ago; net cash balances and short-term investments exceeded borrowings by £5.7m at year end.

There is now negligible gearing following the acquisition of Westpark for £8.5m, but it is possible that cash resources will soon be swollen by the finalisation of the £15m sale of the Edgar Allen Foundry site in Sheffield.

comment

Aurora has made an impressive recovery from near catastrophe in 1983, but yesterday's figures suggest that the group has reached a plateau after four years of rationalisation and cost-cutting. It seems that margins, once above 10 per cent, just cannot be squeezed any further, and it becomes necessary to make acquisitions. With virtually

no gearing, even after the net £8.5m paid for the industrial valve company, Westpark, in January, the balance sheet is strong enough to support more purchases - and will be further fortified when the Edgar Allen site is finally sold at an estimated profit of £10m, after allowing for the cost of building a new foundry. Assuming no repeat of problems at Osborn-Musket, the company should make £13m this year putting the shares on a prospective p/e of 9.4. Fair on trading grounds alone, but investors' attentions are likely to be focussed on the stake-building activities of Australia's National Industries, the Antipodean engineering conglomerate which has taken its holding in Aurora from under 5 to nearly 22 per cent since Black Monday.

MEET SOME OF OUR MOST VALUABLE PROPERTIES.



As you can imagine, we've a formidable body of knowledge in Jones Lang Wootton.

And much of it's housed in some rather formidable minds.

The fact is, we can put at your service some of the finest brains in commercial property.

Yet it's not what we know individually that gives us our edge.

It's the pooling of this knowledge, and the perspective this gives.

And we can draw on a big pool.

We've around 2500 people, in forty-five

offices in sixteen countries.

They're our strength. They're highly trained and they're highly approachable.

Call us on 01-493 6040 if you would like to talk.

Put simply, we know our business, all over the world.

Whatever you need, you couldn't be in safer hands.

And please don't think we shy away from small jobs.

Small we're not, but professional we are.

And we're not a bit shy about that.

P-E International

MANAGEMENT AND COMPUTER CONSULTANTS

Summary of 1987 Results	1987 £000's	1986 £000's	
Fees	35,732	24,125	+48%
Profit before tax	3,337	2,220	+50%
Margin	9.3%	9.2%	
Earnings per share	14.6p	12.0p	+22%
Dividends per share	3.6p	3.0p	+20%
Shareholders' funds	13,161	10,293	+28%

Extracts from Statement by the Chairman, Hugh Lang:

- 1987 was a highly successful year with record results again.
- In June we acquired Inbucon, another major management consultancy.
- In December we acquired Atlantic Consulting, a Dutch search and selection firm.
- We have made a good start to 1988, business conditions remain favourable and we look forward to another year of progress and achievement.

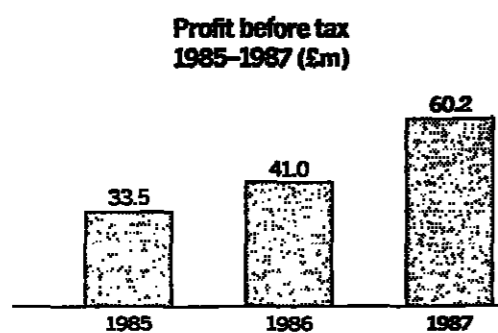
Copies of the full Annual Report and Accounts 1987 and of P-E's annual review "Perspective 1988", which will be posted to Shareholders in April, may be obtained from: The Secretary, P-E International plc, Wick Road, Egham, Surrey TW20 QHW. Telephone: Egham (0754) 34411.



Jones Lang Wootton

A world of experience in commercial property

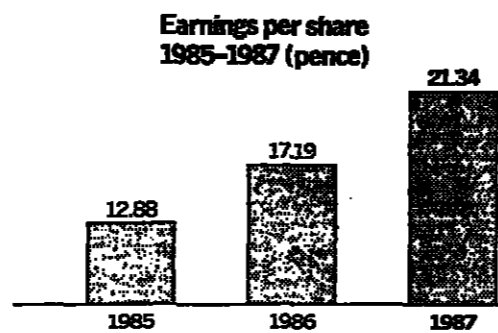
Another year of record growth



Extracts from a statement by the Chairman, Professor Roland Smith.

1987 has been a most successful and busy year for Hepworth with record profits being achieved yet again with all the companies in the group contributing to an outstanding performance as well as important profit contributions from the recently acquired heating and refractory businesses.

Controlled expansion by acquisition has continued in the early months of 1988 with the public offer to acquire The Henderson Group plc which manufactures domestic garage and industrial doors and security products.



It is the board's strategic intention to develop and broaden the involvement of Hepworth in building products that are capable of expansion through improved marketing and management techniques.

Executive management has been strengthened at both corporate and operating levels and I believe that we now have a strong team in place which can fulfill our operational objectives.

Trading in the year to date has been excellent and unaudited results show a significant improvement on the equivalent period last year suggesting a favourable outcome for the year.

SUMMARY OF RESULTS

	1987 £ million	1986 £ million	Percentage Change
Turnover	415.4	362.4	+14.6%
Profit before tax	60.2	41.0	+46.6%
Profit after tax	39.6	27.5	+44.0%
Earnings per share	21.34p	17.19p	+24.1%
Dividend	9.90p	8.29p	+19.6%

HEPWORTH

CERAMIC HOLDINGS PLC

Financial Advisers to UK Companies Acquiring in the US 1987 M & A League Table Ranked by the number of deals

Financial Advisers	No. of deals
1 Hill Samuel	13
2 Morgan Grenfell	12
3 SG Warburg	10
4 Schroders	9
5 First Boston	8

...Acquisitions Monthly, March 1988

Some things don't change

Like everyone else in the City, we have been through a period of unprecedented change in recent months.

But behind the headlines, life for our M & A team remained the same in one important respect.

As the March issue of Acquisitions Monthly reveals, we continue to act on more US deals than any other merchant bank in the UK.



HILL SAMUEL & CO. LIMITED
Number one with clients

UK COMPANY NEWS

SHARES FALL NEARLY 10% AS PROFITS DISAPPOINT

Timeshare turnaround hits Barratt

BY PHILIP COGGAN

SHARES in Barratt Developments, the housebuilding group, fell nearly 10 per cent yesterday, dropping 19p to 216p, after the company announced interim pre-tax profits of £17.3m - below many market estimates.

The problem was a £3.6m turnaround in the group's timeshare division. Adverse publicity about the marketing methods of some fringe timeshare operators severely affected demand and the division lost £1.8m in the first half. However, the company hopes that the division will break even over the year as a whole.

The rest of the group benefited from rising house prices in its various markets. The UK housebuilding division completed slightly fewer houses (3,100 against 3,900) in the first half but the average price per unit increased from £40,000 to £49,800. Barratt has now achieved its long term aim of reducing to 30 per cent the proportion of units it sells to first time buyers.

Sir Lawrie Barratt, chairman, said that house price rises were becoming more uniform across the country, although Scotland and parts of the North of England continued to be difficult. The company now has a UK land



Sir Lawrie Barratt - UK land bank covers the next 2½ years output

bank covering the next 2½ years to four years of output.

The housing market was also strong in California where the group introduced a new range, Laguna Niguel, selling at prices of up to \$450,000. Barratt's Californian land bank is equivalent

to December 31 were £17.2m (£12.5m) on turnover of £317m (£186.6m). After tax of £5m (£4m), earnings per share was 6.3p (4.8p). The interim dividend is being increased to 2.7p (2.4p).

● comment

Judged by the ease with which Barratt's share price fell yesterday, the company's reputation has still not recovered from the problems of 1983/4 when its relative decline against the FT-All Share Index was some 80 per cent. Some analysts were obviously hoping that the company's traditional second half bias would be reduced and were looking for £19m-£20m; but for the timeshare problems, they might have been proved right. The betting remains that Sir Lawrie take the line that if house prices outside the South East do start to catch up, then Barratt will be one of the main companies to benefit. Until then, the 7 per cent prospective yield will be the best support for the shares.

Bernard Matthews downturn

By Dominique Jackson

HIGH GRAIN prices and a drop in whole turkey and chicken sales pushed pre-tax profits at Bernard Matthews, turkey and meat products group, down from £18m to £14m for the 53 weeks ended January 3 1988.

The company warned in December that disappointing turkey orders, attributed to strong competition, would hit 1987 profits. Turnover slipped from £136.8m to £126m.

Other adverse factors cited were inclement weather in the first half and unexpectedly high grain prices in the second half. Mr Bernard Matthews, chairman, said he was pleased to report that grain prices had fallen significantly since the year-end.

The directors are recommending a final dividend of 1.125p, making a total for the year of 1.75p per share. This is unchanged from 1986 after adjusting for a capitalisation issue. After tax of £2m, earnings per share were 7.4p (7.5p).

Turkey meat product sales in the UK showed marginal growth although red meat product sales were depressed in the face of price competition from commodity meats such as pork.

Mr Matthews said unbridled production increases from competitor companies had resulted in high stock carry-over in turkeys but he added that a competitive pricing policy was now stimulating strong demand for Easter.

He said the company was reviewing future policy in the petfood market following discouraging research results.

The company has recently adopted a far more aggressive marketing strategy which had proved so successful in boosting sales of added value turkey products, it would soon be extended to red meat products.

Distribution arrangements with E.J. Heintz in Canada are due to end shortly but negotiations with another Canadian distributor are at an advanced stage.

The US licensee, Sara Lee, has just installed a pilot plant to test market a range of Bernard Matthews products.

● comment

The breakdown of the frozen turkey cartel may not have excited much publicity but it certainly triggered a price war from which Bernard Matthews has emerged as one of the winners. Yesterday's results appear to indicate that the Norfolk turkey breeder has not been successful in diversifying out of festive fowls. Investors have been waiting some time to see the magic Bernard worked with turkeys and their trimmings boost other products and projects. However, the Top Class pet food flop may well prompt the company to concentrate on its core business. The way ahead could lie in the US although the benefits of the Sara Lee deal will not be through until 1989. Mr Matthews plans an all-out advertising offensive which is bound to take its toll on profits. Current forecasts for a static £14m give a prospective multiple around 11. This appears high given that the outlook is far from "bootiful".

British Mohair ahead

British Mohair Holdings, yarn manufacturer, increased pre-tax profits by 23 per cent to £4.83m for the year to end-December 1987. Turnover rose by £2.1m to £44.1m.

Earnings per share improved by 27 per cent to 23.6p (18.2p). A final dividend of 6.1p makes a total of 7.5p for the year.

Mr Charles Fenton, chairman, said improved efficiency helped to produce the good results adding that reorganisation and an encouraging order book made the outlook promising.



Federale Mynbou Beperk

(Incorporated in the Republic of South Africa)
(Registration number 59/1008/06)
(*Fedmynt)



General Mining Union Corporation Limited

(Incorporated in the Republic of South Africa)
(Registration number 01/01222/06)
(*Gencor)

Oryx Gold Holdings Limited

(Incorporated in the Republic of South Africa)
(Registration number 59/1900/06)
(*Oryx)

Proposed rights offer of ordinary shares in Oryx Gold Holdings Limited

IMPORTANT INFORMATION CONCERNING THE ORYX MINE, INCLUDING FINANCING ARRANGEMENTS.

On 11 March 1988, it was announced that Gencor intends offering by way of rights, approximately R50 million of ordinary shares in Oryx to its ordinary shareholders, 8.5% variable compulsorily convertible preference shareholders and 12.5% unsecured subordinated compulsorily convertible debentureholders registered as such at the close of business on Thursday, 31 March 1988. Fedmynt, the controlling shareholder of Gencor, intends renouncing its entitlement to approximately R27 million of Oryx shares, pursuant to the rights offer, in favour of its own ordinary shareholders, 8.5% variable compulsorily convertible preference shareholders and 12.5% unsecured subordinated compulsorily convertible debentureholders registered as such at the close of business on Thursday, 31 March 1988.

Further to that announcement, certain important details were disclosed during a presentation in Johannesburg on Wednesday, 23 March 1988. These are set out herein for the benefit of those investors who did not attend that presentation.

— One reserves have been estimated independently by three parties. The reserves are estimated as follows:

	Total tons milled	Average yield Life-of-mine
Professor Daria G. Krige	40	g/t
Dr. Isobel Clark	48	8.2
Gencor	44	8.9
		7.5

— More detail of the Gencor ore reserve estimates is tabulated below:

	Average milling width	Total tons milled	Average yield
	cm	millions	g/t
Beisa Mining Area	157	18	7.9
Ventures Mining Area	173	26	7.2
Oryx Mine	165	44	7.5

A higher milling width has been estimated in the Ventures Mining Area to allow for the planned use of trackless mining methods and for higher channel widths.

— Production from the Kalkoenkrans Reef on the No. 1 Shaft System in the Beisa Mining Area is planned to start in July 1991, building up to 70,000 tons milled per month by July 1992 and thereafter to the designed capacity of 100,000 tons milled per month in 1993.

— The designed capacity of the No. 2 Shaft System in the Ventures Mining Area is 120,000 tons milled per month.

— No decision has yet been taken on the start-up date for major capital expenditure on the No.2 Shaft System in the Ventures Mining Area.

— Capital costs of the project in June 1987 terms are estimated to be:

Beisa Mining Area (No.1 Shaft System)	R 860 million
Ventures Mining Area (No.2 Shaft System)	R 663 million
Total capital cost	R1,523 million

— Working costs on the No.1 Shaft System, where conventional mining methods will be used, are expected to approximate the industry average. Costs on the No.2 Shaft System, where trackless mining methods are planned, are expected to be 10 per cent to 15 per cent below that of the No.1 Shaft System.

— Through the mechanism of preference shares, Oryx will receive 85 per cent of the distributable profits from the Beisa Mining Area and 97.75 per cent of the distributable profits from the Ventures Mining Area.

— St. Helena Gold Mines Limited, who will develop and operate the Oryx mine as a division of St. Helena, will retain 15 per cent of the distributable profits of the Beisa Mining Area and 2.25 per cent of the distributable profits of the Ventures Mining Area.

— The Beisa Mining Area capital expenditure may be written-off against the taxable income of St. Helena. The Ventures Mining Area capital expenditure may be written-off against the taxable income of the Beisa Mining Area.

— In consideration for ceding the right to mine to St. Helena, Oryx is entitled to a royalty equal to 15 per cent of the gross revenue from the Oryx mine.

— Uranium produced from the Beisa Reef in the Beisa Mining Area, if any, will not accrue to Oryx, but to a new company, Beisa Oryx (Proprietary) Limited.

— The Trust Bank of Africa Limited, Nedbank Limited and The Standard Bank of South Africa Limited have agreed to make available, to Oryx, total facilities in excess of R550 million.

Johannesburg
24 March 1988

Merchant bankers



Senbank

Central Merchant Bank Limited
(Incorporated in South Africa)

Standard Merchant Bank Limited



The Merchant Bankers
(Incorporated in South Africa)

Sponsoring brokers



Martin & Co Inc
(Incorporated in the Republic of South Africa)
(Member of The Johannesburg Stock Exchange)



Ed Hem, Rudolph Inc.
(Incorporated in the Republic of South Africa)
(Member of The Johannesburg Stock Exchange)

James Capel & Co.
(Incorporated in the Republic of South Africa)
(Member of The Johannesburg Stock Exchange)

TECHNOLOGY

IF THERE was one segment of manufacturing which trumpeted promises from the rooftops but never delivered worthwhile results, it was the supply of factory automation equipment.

As the "factory of the future" became a fashionable catchphrase at the end of the 1970s, customers and hardware suppliers rushed into the industry, displaying all the glee of a child with a new toy. What they reaped was pain and disillusion.

General Motors in the US made a costly fool of itself by automating factories without knowing what it was doing, while the first batch of suppliers, like Westinghouse and General Electric, issued wildly optimistic statements about huge amounts of money to be made from the supply of advanced automation equipment. They were forced to back-track embarrassingly.

Westinghouse virtually disappeared from the scene and many other suppliers, from robot makers to producers of flexible manufacturing cells, made heavy losses trying to elbow into the market. A long shadow was cast right across the industry by a mixture of over-ambition on the part of equipment makers and buyers, unreliable hardware, plain bad management and nightmares in computer software (the kind of thing that gave widgets square holes instead of round ones).

Now, however, the suppliers find themselves in a cautiously expanding market for equipment and services which help automate parts of factories and warehouses, and transmit information from the shopfloor to all the other departments of a company that have some link with production.

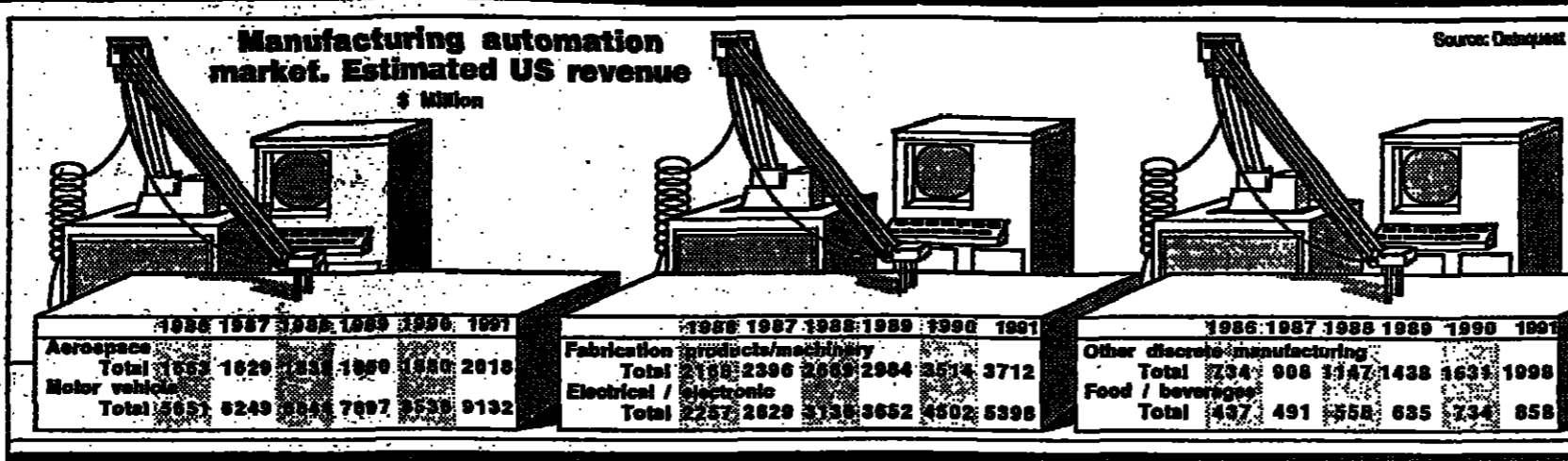
Total annual sales of manufacturing automation equipment are estimated to be more than \$300m and growing.

This figure includes a vast array of equipment ranging from computers used on the shopfloor, in purchasing departments, production control and engineering, to machining lines in car plants and aerospace factories.

It incorporates sales by software companies, suppliers of automated handling systems and computer aided design, engineering and test equipment. A battery of service companies which provide advice on how different features of automation in a factory can be linked also fit around the customers.

Though the business of supplying equipment is very young and immature it is very crowded. With parts of it fragmented, it encapsulates bitter struggles for control among vendors within each product area.

As no type of company can offer anywhere near the full range of products, the industry



Manufacturing Automation Equipment

Volatile alliances born of market growth

By Nick Garnett

Even West Germany, the leading European consumer of automation equipment, had only 35 full-scale flexible manufacturing systems (FMS) at the beginning of 1986, according to a recent report by Frost and Sullivan, the data company.

At the same time, suppliers in a number of sectors struggle to make money and others continue to flee the industry. Even a powerful machine tool maker like Schenck of West Germany, a leading supplier of FMS in Europe, still makes far bigger profits selling stand-alone machines than equipment for linked systems.

The number of manufacturers of automated guided vehicles (AGVs) rocketed during the 1980s from about ten to some 60 or so. But many of them, unable to make money, have been absorbed by more powerful competitors.

The market price of computer aided design and manufacturing equipment (CAD/CAM) has fallen sharply, pushing a number of the smaller makers out of the business.

Meanwhile in Japan, many automation equipment suppliers like Matsushita and Toshiba are recording no increase in sales, and demand for Japanese-made robots appears to have fallen.

A very large proportion of potential customers also remains bemused by it all, particularly over whether so-called islands of automation on their shopfloors

should be linked into more comprehensive systems.

Nevertheless, there are plenty of statistics to show that overall the industry is growing. The worldwide market for robots was estimated to be worth almost \$50m in 1986 with the number of installed robots numbering 40,000 and rising.

Frost and Sullivan believes the European market for FMS is increasing at more than 30 per cent a year, a trend which, if continued, would lift this market from some \$60m now to \$1.5m in four years.

While many companies remain wary of big comprehensive automation plans, others are pressing ahead with such projects. Ford, for example, is engaged in a large programme to introduce a form of CIM in stamping operations at its US plants.

Customers are edging into production areas at increasing speed. The US market for all types of factory automation equipment is the 'biggest in the world' and of this market 25 per cent by sales revenue is now made up of computer hardware directly or indirectly linked to manufacturing processes, according to Datquest, the information analyst.

This is still much smaller than the manufacturing systems themselves, which, including machine tools, account for 60 per cent of the US automation market.

Some of the battles among suppliers are being fought within traditional compartments by long time foes. For example, IBM, the world's biggest computer company, has been introducing smaller supermini machines to help it challenge the position held by Digital Equipment Corporation (DEC) at the point of manufacture on the shopfloor.

DEC in turn announced this month the addition of a bigger computer to its range in an attack on IBM's position as a supplier of plant and department-wide systems.

An array of other computer makers, like Hewlett-Packard, Honeywell and Unisys are also in this market, but some doubt whether all of them can maintain their existing positions.

At the same time relative newcomers are making an impact by offering special features. Tandem produces equipment which duplicates almost every component in a so-called fault-tolerant system. In just a few years the company has gone from nothing to a \$100m a year business in computers for automation.

In the supply of special purpose machines for vehicle building, traditional antagonists like Cross, Lamb and Ingorsoll in the US and Heuler Hille, Burkhardt and Weber and Heller of West Germany, also seem to be coping with the shift away from rigid transfer machines to more flexible machines.

But this area could become

even more crowded if Japanese machine suppliers use the increasing worldwide spread of Japanese car plants to piggyback into the Western market for this equipment.

"I do not think that will happen because of the strength of the yen," says Eden Diver, a senior executive at Cross. However, Komatsu is supplying the UK's Rover Group with a huge press that is being assembled by contract engineers in Britain.

Against this background, one of the most significant developments in the scramble to stay in the automation business has been the forging of new relationships between suppliers.

Some of these are temporary

The industry encapsulates bitter struggles among vendors in each product area

arrangements. When a large automation project is undertaken, a team made up of specialists from different supply companies is usually set up to oversee the project.

"Collaboration with other types of company is very common and these partnerships are usually temporary," says Stephen Darvill, marketing and sales manager for industrial systems at Logica, the UK software company.

However, a number of takeovers and permanent joint ventures among vendors are now under way as part of a general theme in which increasing power is being placed in the hands of fewer companies.

Some of these alliances have been forged to increase the leverage of the participating companies within a particular segment. For instance, General Electric and Fanuc of Japan pooled a

large part of their electronic controls business 18 months ago in their fierce battle with other control suppliers, including the powerful Siemens of West Germany, Europe's largest factory automation company.

EDS, the dominant US software house has been expanding rapidly by acquisition, partly to extend its influence in manufacturing automation. This is part of a process which many believe will result in fewer large software houses and a greater array of companies offering specialist software packages. It is the mid-sized companies that will find themselves increasingly squeezed.

There are far more instances of joint ventures and takeovers designed to increase the spread of capability. Some of these are self-contained deals. Examples include the joint venture between Hewlett-Packard and Bechtel, the process and contracting engineering company, and the recently announced takeover of Computervision, one of the top three US suppliers of CAD/CAM equipment, by Prime, the computer company.

US control suppliers like Allen Bradley also have such arrangements. In France, an industrial automation company is at the moment the subject of hostile bids from Schneider and from Framatome, both of which have very different engineering products.

A growing trend, though, is that many of these deals are part of linked chains in which some suppliers are becoming increasingly powerful across a wide sphere of activities. IBM is at the centre of a web of such arrangements, badge-engineering robots made by a Japanese manufacturer and setting up a joint venture with Dassault, the French aerospace company. In this arrangement, IBM sells under its own name Dassault-designed CAD/CAM systems.

In another striking development, a joint venture between IBM and Measurux, the US process control systems maker has helped IBM secure a big automated manufacturing contract from Ford.

One question still to be resolved is whether a certain type of company will emerge in a dominant position as systems integrator for big projects. Computer manufacturers, using their own in-house production experience, are interested in this. So are the big machine tool makers, software suppliers and advice companies like Coopers and Lybrand and Ingorsoll Engineers.

There will be a great deal of competition for this integration role but the market might be then be big and varied enough for a lot of people to get a slice of the cake.

IBM office systems get the telex message

By Geoffrey Chaffin

IMI COMPUTING of Witton, Birmingham, in the UK, has developed a telex handler called Atlas for users of IBM 360 mainframe computers. It provides a "totally packaged solution to the problem of integrating telex into the IBM office environment," claims the company.

Atlas allows IBM terminal users to exchange telexes from desk to desk within a company, or externally over the world's telex network.

IMI Computing says Atlas is a low-cost alternative to large message switching systems within big companies.

Atlas's functions include telex copy circulation, telex mail shots, and out-of-hours (store and forward) transmission. Individuals can set up their own telex address books.

Whitaker compacts optical booklist

By Geoffrey Chaffin

J. WHITAKER and Sons of the UK has launched Bookbank CD-ROM Service, the first monthly book-listing in Europe to use optical recording technology.

The company's Bookbank gives details of nearly 0.5m titles, from 13,000 publishers. Already available on microfiche (postcard-sized pieces of microfilm), it is widely used by bookshops and libraries. Now all the data is available on a single 120mm (4.75in) CD-ROM (compact disc read-only memory).

Apart from quicker access using the screen and keyboard of an associated personal computer (IBM PC), the availability of the data in electronic form means that the software can be used to generate particular lists of books for the user (for instance areas of interest for example).

The CD-ROM/PC combination can also exchange data with electronic systems with which the user's customers order books. Considerable cost saving and improved delivery times can be obtained, says Whitaker.

Financial Times Newsletters - vital news, analysis, predictions and inside information simply unavailable elsewhere

The Financial Times has a separate newsletter division which publishes twenty-eight titles covering key business areas.

You will almost certainly find at least one of them of direct interest to you. As you'll see from the list below, each of our regular newsletters has been designed to be of practical assistance to senior decision-makers within a particular industry or profession.

FAST DELIVERY OF INFORMATION

Within hours of the final copy being written, the newsletter is printed and in the post - first class or airspeeded.

INSIDE INFORMATION AND PROFIT OPPORTUNITIES

Great emphasis is placed on providing you with information that can be acted upon immediately. You get comprehensive updates and news reports plus informed, analytical comment. Our editors are not shy in venturing their opinion and much of their comment contains uncannily accurate predictions.

We often receive inside information from industry contacts which has not been published elsewhere. Our

reporting style is balanced and impartial, concentrating on hard fact rather than pure rumour.

Whenever relevant, our newsletters are indexed for ease of reference and we are always pleased to supply a back-up research service to our subscribers.

We will also supply you with your first binder to store back copies.

FROM £17 A MONTH

FT Newsletters are priced according to their depth of coverage and frequency of publication. A typical monthly -

such as Energy Economist - will cost £17 a month.

You are always covered by our Money-Back Guarantee. So you are free to cancel your subscription whenever you choose and receive a refund on all unmailed issues.

FREE TRIAL OFFER - UP TO FOUR TITLES

In order to prove how useful FT Newsletters will be to you, we will be pleased to send you four trial issues of your choice. You will bear no cost and be under no obligation.

Why not send for your free trial issues now, while it's fresh in your mind?

BANKING AND FINANCE	ENERGY	INTERNATIONAL TRADE	NEW TECHNOLOGY	INSURANCE AND PROFESSIONAL
International coverage of the latest financial and banking events FT FINANCIAL REGULATION REPORT FR records worldwide regulatory developments discussing their implications for the financial services industry, monitors the performance of chief financial centres, and anticipates the response of regulators to market innovations and disturbances. FT EUROMARKET REPORT A weekly report on international financing, covering credit and capital market developments, sovereign risk, debt negotiations, restructuring, syndicated loans and chib deals, co-financing and export credits etc., giving early notice of impending deals and those which are experiencing problems. INTERNATIONAL BANKING REPORT IBR carries up-to-date banking news, results and appointments with analysis of changes in the regulatory political and business environment in which international banking takes place. FT MERGERS AND ACQUISITIONS Every monthly issue combines details on international mergers and acquisitions and buy-outs with expert commentary and analysis on the current world takeover scene.	From fossil fuels to new power sources, this group of titles covers key aspects of the industry INTERNATIONAL COAL REPORT ICR provides concise information on finance, markets, prices - including its unique spot steam coal survey. It also covers everything from production to technological developments. NEW POWER EUROPE Helps predict fuel prices and tariffs, reports on cross-border electricity trade and political issues and examines market trends. This twice monthly report is invaluable for both tactical decision-making and long-range planning. NORTH SEA LIT Now established as the most reliable and up-to-date source on North Sea oil and gas, NSL weekly reports include licence awards, farm-in, farm-outs and development plans, plus news of tenders. THE FT ENERGY ECONOMIST This monthly overview of world energy patterns is designed to help you form your energy strategy. The account is on analysis, prediction and trend identification. EUROPEAN ENERGY REPORT Concise, comprehensive and analytical energy coverage twice a month gives EER a high profile among those concerned with commercial and technological changes in the world's largest energy market. INTERNATIONAL GAS REPORT IGR is a news and analysis service for the natural gas and gas liquids industry worldwide. With the aid of essential facts and statistics, it provides an insight into what makes the gas industry tick.	Country-by-country guides featuring economic forecasts and market opportunities INTERNATIONAL TRADE FINANCE Every two weeks, ITF covers the way in which trade credit and insurance initiatives as they happen, providing expert guidance in this difficult area of business activity. MIDEAST MARKETS Twice monthly, MEM surveys business developments in the Middle East and North Africa with an eye to profits and co-sourcing opportunities. EAST EUROPEAN MARKETS Published twice monthly in association with the London Chamber of Commerce and Industry, EEM supplies the international business community with a full and accurate intelligence service from Eastern Europe. LATIN AMERICAN MARKETS Twice monthly, LAM is designed to give those with interests in Latin America a special insight into developments in the region. WORLD COMMODITY REPORT WCR is a weekly review and analysis of trends and developments in the commodities markets worldwide, with special emphasis on trend-spotting and hard news.	A comprehensive global view of news and trends in every market TELECOM MARKETS TM meets the urgent need for hard news of the latest changes in telecommunications markets around the world. ELECTRONIC OFFICE Designed to serve the users and potential users of automated office twice a month, EO is a reliable, up-to-date briefing on developments worldwide. PERSONAL COMPUTER MARKETS Providing you with valuable news and data you won't find elsewhere, PCM appears as a twice-monthly overview of the personal computer marketplace. AUTOMATED FACTORY AF will tell you what your competitors are doing and considers the risks and opportunities open to factory management. NEW MEDIA MARKETS NMM ensures that you are kept informed on the crucial news and trends in cable TV, radio, satellites, video, programme/file production and videorec. COMPUTER PRODUCT UPDATE Systems, peripherals, software and services are all brought right up-to-date in this easily comprehensible twice-monthly guide. SOFTWARE MARKETS Every area of software development, marketing, integration and purchasing is covered by this exclusive briefing every two weeks.	Insurance, taxation, accounting and the law for businessmen and professionals WORLD INSURANCE REPORT Non Marine, Casualty/Liability/Accident, Marine, Aviation and Transport and The Markets - WIR is mailed every two weeks, regularly reporting on investment operations, company news, major losses and those technical developments which affect the international insurance market. THE FT LONDON POLICY GUIDE Filling a significant information gap, this monthly newsletter analyses hundreds of direct policies in 24 major classes of insurance. WORLD POLICY CHECKLIST A monthly international report covering commercial, corporate and group insurance products and packages - including new financial products and new services from programmes. WORLD ACCOUNTING REPORT As a monthly bulletin for professionals worldwide, WAR analyses every major accounting development thoroughly and locally, monitoring in particular the activities of the main accounting committees and regulatory bodies. WORLD TAX REPORT Written by international experts keeping you briefed accounting and objectively on tax issues affecting business at every level, this monthly newsletter is the leader in its field. BUSINESS LAW BRIEF Monthly coverage ranges from public law, through commercial law, to anti-trust and trade regulations. Written in plain language, it is sharply critical without losing objectivity.

Send now for free trial issues of the newsletters which most interest you...

YES, please send me a FREE sample copy of each of the newsletters I have marked, up to a total of four, along with subscription details. I understand that I am under no obligation to take out a subscription.

NAME (MR/MRS/MS)
POSITION
ORGANISATION
ADDRESS
COUNTRY
POSTCODE
TEL

BANKING AND FINANCE

FT Financial Regulation Report
FT Euromarket Report
International Banking Report
FT Mergers and Acquisitions

ENERGY

International Coal Report
New Power Europe
North Sea Letter
The FT Energy Economist
European Energy Report
International Gas Report

INTERNATIONAL TRADE

International Trade Finance
Mideast Markets
East European Markets
Latin American Markets
World Commodity Report

NEW TECHNOLOGY

Telecom Markets
Electronic Office
Personal Computer Markets
Automated Factory
New Media Markets
Computer Product Update
Software Markets

INSURANCE AND PROFESSIONAL

World Insurance Report
FT London Policy Guide
World Policy Checklist
World Accounting Report
World Tax Report
Business Law Brief

Send to: Caroline Jones
Financial Times Business Information
Tower House, Southampton Street
LONDON WC2E 7HA ENGLAND
or phone 01-240 9391

ftbi
FINANCIAL TIMES BUSINESS INFORMATION

The Financial Times invite you to send for trial issues of any specialist newsletters listed above, at no cost whatsoever. This way you can see for yourself just how vital FT reports can be to the operation of your business. All you have to do is mark the box beside each newsletter which interests you.

Up to Four FREE issues

Canada heads for wheat sales record

Mr Leibfried is forecasting barley exports of 5.5m tonnes in 1987-88, down from 6.7m in 1986-87.

In its annual report on the dairy products market published in December Gatt forecast a rise in butter prices.

The only commission proposal with direct international ramifications is the suggestion of a premium to encourage the use of cereals in animal feed. Mr Andriessen said that the input of cereals into animal feed had decreased by some 6 m tonnes in the past five or six years, as cheap imports of tapioca from Thailand and corn-gluten had come to replace high-priced EC

NICKEL PRICES SURGE

Cash metal added \$550 a tonne to Tuesday's massive \$2,500 gain, closing at a record \$19,450 a tonne, equivalent to

Mr Neil Buxton of Shearson Lehman Brothers London Metals Research Unit suggested: "We still believe that six months from

Until recently only a few up-market car producers such as Audi and Porsche in West Germany were using galvanised steel extensively but now some vol-

Sentiment remains bullish and levels of between \$10 and \$14 a lb are being predicted, analysts said.

ply - because of industrial disputes and technical problems - this year are having a bigger impact on prices in the marginal (LME) market.

As talks on contract extensions get underway Mr Abdul Rahman Ramly, Pertamina's president is making encouraging noises about concessions on contract terms.

One contract term which is not on the negotiating table is the production split. This ensures Pertamina 85 per cent of any discovery, once the contractor has recovered his costs. "That is set

The government knows it is competing for a shrinking pool of capital dollars," a US oil company said. It also recognises that few companies are likely to close down operations, having invested

More critical, however, has been the downturn in both seismic and drilling activity. Mr Ramly says spending by foreign contractors is budgeted to fall 30

acute when the discovery is in a high risk area, perhaps deep water or dense jungle. The greater development costs involved, all of which are recovered by the contractor, means

"I'm sure when the terms are extended," said one senior oil man, "the Government will give it as much publicity as any new contract."

which has no price support clauses, was negotiated last September and should have come into operation on January 1. But it has been held up by delayed negotiations.

Union market close. **Wheat** 100 lbs./bu. 1.00 1/2
corn 100 lbs./bu. 1.00 1/2

Mar	106.15	106.65	106.55	106.15
Barley	Close	Previous	High/Low	
Mar	101.65	101.85	101.75	101.65
May	103.65	103.55	103.85	103.55
Sep	97.35	97.70	97.35	
Nov	100.25	100.40	100.25	
Jan	102.50	102.65	102.65	102.50
Mar	104.25	104.65	104.25	

Turnover: Wheat 150 (182) , Barley 34 (22)
lots of 100 tonnes.

scale to refill order books. Present Merino price levels have yet to be passed on fully. The AWC market indicator is at another new peak of 1170 cents a kg., compared with 1161 a week ago. Bradford top prices are scarcely tested by hopeful increases of 5 or 10 pence a kg. Merino quotations are creeping through, taking 64's up to 595 pence and occasionally well beyond.

2400	158	110	120
Aluminum (88.5%)	Calls	Puts	
2250	283	190	43
2300	293	151	72
2400	165	116	73
Copper (Grade A)	Calls	Puts	
2150	208	204	72
2250	151	180	114
2350	108	124	107

	Close	Previous	High/Low
Mar	107.70	103.40	107.90 104.00
Apr	104.70	101.80	0 10
May	98.70	96.00	98.95 97.00
Jul	94.00	91.50	94.50 92.00
Sep	90.80	88.75	90.50 88.00
Dec	88.70	86.50	88.90 86.00
Jan	85.80	84.50	0 0
Mar	84.00	83.50	84.00 83.00
May	83.00	82.80	0 0
Jul	82.00	81.50	83.00 80.00

FUTURES			
MEATERS (Base: September 18 1981 = 100)			
Mar 22	Mar 21	month ago	year
1726.1	1732.0	1763.2	1810.0
DOW JONES (Base: December 31 1974 = 100)			
Spot	130.26	128.74	129.80
Futures	132.25	132.72	134.05

Feb	43.42	43.55	44.20
Apr	41.30	41.15	41.50
PORK BELTIES 38,000 lbs; cont'd			
	Close	Previous	High/Low
Mar	55.10	55.45	55.75
May	56.22	56.50	56.85
Jul	56.52	56.85	57.25
Aug	56.45	56.65	56.95
Feb	57.90	57.75	58.30
Mar	57.60	57.40	57.60

43.50
49.90
41.25

54.80
55.80
58.10
54.95
57.00
58.95

Gilts relinquish early gains

International Investment Manager

In this new position, the candidate will organize, plan and further develop present investment activities. The candidate will monitor and review performance of the external investment managers of the Bank and may play an active role in the management of Fixed Income Securities.

The position demands a creative all around individual with strong leadership skills and sound experience of investment management acquired with a substantial fund management company.

This position will be based in Saudi Arabia. A competitive package will be offered to the high calibre individual that this post requires.

Corporate Marketing Officers

These positions carry a fully competitive salary and expatriate benefits package. Envelopes should be marked International Investment Manager, Corporate Marketing Officers, Customer Services Manager, as the case may be and forwarded, in confidence to:

THE ASSISTANT GENERAL MANAGER (PERSONNEL)
RIYAD BANK, HEAD OFFICE
P.O. BOX 1047, JEDDAH 21431, SAUDI ARABIA.

FT UNIT TRUST INFORMATION SERVICE

هـ. امة الاصل

FT UNIT TRUST INFORMATION SERVICE[illegible]

Continued on next page

کتابخانه امام رضا

[illegible]

AMERICANS - Contd

BUILDING, TIMBER, ROADS

DRAPERY AND STORES—Contd

ENGINEERING—Contd

INDUSTRIALS (Miscel.)—Contd

INDUSTRIALS (Miscel.)—Contd.

CANADIANS

79	Lawrence (W.)	147	+4.0	2.6	3.7
112	De 6.5pc Carlin PI EL	163	-1/2	8 1/2%	7.1

ELECTRICALS

Clayton San 50p.....	280	9.0	3.2
Cohen (A) 20p.....	525	112.1	3.9
Continental 10p.....	333	6.8	3.6

204	216	Asia AB B S12-2	218	+4	17.8	9	7
225	226	Avis Europe.....	333	-3	17.6	24	3.1
335	343	Arpa Rubber £1	657	+1	10.8	40	2.1

177	Morgan Crucible ..	287	.....	4.00	2.7	3.2	2.4
47	8 Morris Fin.	640	.....	5.00	4.6	1.1	2.8
169	99 Kinair Inc. 100	363	-2	53.0	4.6	1.1	2.8

BANKS, HP & LEASING

CHEMICALS & PLASTICS

247	Domino Print. Sci. Sp.	335	+2	2.9	4	1.2
45	Dowling & M. 10p.	61		1.76	2.9	4.0

RHP	192	-1	3.2	3.0
Personnel Svc.	203		7.2	
Patrol Life Ins.	149			

73	CCA Galleries Ltd.	100	12.7	2.7	3.7
160	CCF Sp.	190nd	-5	3.0	4.2

145	141	Helyon.....	171	-1	113.96	2.7	3.2	16
150	255	Rennick Group	335	-	-	-	-	12

Hire Purchase, Leasing, Etc.				
Anglo Leasing 10p...	184	+2	12.6	6.3
GLEF 5p...	173	+5	11.75	8.2

105	Do. 8-10 p.m. 8-10 p.m.	105	48.1%	6.5
141	Amber Day 2 1/2 p.m.	36	+1	20
200	Amber Day 2 1/2 p.m.	200	25	17

120	Mitel Corp.	165	+7	-	-	-
65	Molybdenum	88	+2	1.5	4.3	2.6

Chambers & Farns	162	-2	2.75	3.9
Clifford's Dairies	497	-1	18.0	2.2

154	405	Elcom AS NK50	903	-21		
524	174	Elrick 5p	274	1		
261	608	Elrick 5p	5724		800	3.4

55	TSL Group	133	40.73	0.8
133	Third Mile Inv	280	13.0	3.4 1.5 22

BUILDING, TIMBER, ROADS

145	Glasser Group 10p...	145	-3	16.3	2.7	6.1	12
131	Goldberg (A).....	190	.....	14.75	2.3	3.3	18
25	Goodman Group 5p...	38					

160	STC	247	+2	7.0	3.1	3.9	10
66½	Scotronic 10p	128		11.2	3.8	1.4	15

Salween (Christian)...	152	+2	13.62	2.7
Sims Catering Sp...	448		144.4	2.3

35	150	Hay (Norman) 10p...	375	14.15	2.6	1.5	3
70	45	Health Care Servs.....	81	10.9	4.4	1.5	2
22	183	Health Care Comm.....	200	8.8	2.0	5.1	2

200	Wobsey	277	th7.0	3.4	3.5	11.
77	Wood (Arthur) Sp	135	-2	3.5	4	3.6

INSURANCES									
103	Worcester Trust	285	+	1.1	29.28				
104	Worcester Trust	285	+	1.1	29.28				
105	Worcester Trust	285	+	1.1	29.28				
106	Worcester Trust	285	+	1.1	29.28				
107	Worcester Trust	285	+	1.1	29.28				
108	Worcester Trust	285	+	1.1	29.28				
109	Worcester Trust	285	+	1.1	29.28				
110	Worcester Trust	285	+	1.1	29.28				
111	Worcester Trust	285	+	1.1	29.28				
112	Worcester Trust	285	+	1.1	29.28				
113	Worcester Trust	285	+	1.1	29.28				
114	Worcester Trust	285	+	1.1	29.28				
115	Worcester Trust	285	+	1.1	29.28				
116	Worcester Trust	285	+	1.1	29.28				
117	Worcester Trust	285	+	1.1	29.28				
118	Worcester Trust	285	+	1.1	29.28				
119	Worcester Trust	285	+	1.1	29.28				
120	Worcester Trust	285	+	1.1	29.28				
121	Worcester Trust	285	+	1.1	29.28				
122	Worcester Trust	285	+	1.1	29.28				
123	Worcester Trust	285	+	1.1	29.28				
124	Worcester Trust	285	+	1.1	29.28				
125	Worcester Trust	285	+	1.1	29.28				
126	Worcester Trust	285	+	1.1	29.28				
127	Worcester Trust	285	+	1.1	29.28				
128	Worcester Trust	285	+	1.1	29.28				
129	Worcester Trust	285	+	1.1	29.28				
130	Worcester Trust	285	+	1.1	29.28				
131	Worcester Trust	285	+	1.1	29.28				
132	Worcester Trust	285	+	1.1	29.28				
133	Worcester Trust	285	+	1.1	29.28				
134	Worcester Trust	285	+	1.1	29.28				
135	Worcester Trust	285	+	1.1	29.28				
136	Worcester Trust	285	+	1.1	29.28				
137	Worcester Trust	285	+	1.1	29.28				
138	Worcester Trust	285	+	1.1	29.28				
139	Worcester Trust	285	+	1.1	29.28				
140	Worcester Trust	285	+	1.1	29.28				
141	Worcester Trust	285	+	1.1	29.28				
142	Worcester Trust	285	+	1.1	29.28				
143	Worcester Trust	285	+	1.1	29.28				
144	Worcester Trust	285	+	1.1	29.28				
145	Worcester Trust	285	+	1.1	29.28				
146	Worcester Trust	285	+	1.1	29.28				
147	Worcester Trust	285	+	1.1	29.28				
148	Worcester Trust	285	+	1.1	29.28				
149	Worcester Trust	285	+	1.1	29.28				
150	Worcester Trust	285	+	1.1	29.28				
151	Worcester Trust	285	+	1.1	29.28				
152	Worcester Trust	285	+	1.1	29.28				

HOTELS AND CATERERS

[illegible]

INSURANCES

295	182	Mohr Life Sav.	229	+1	+8.6	-1	4.2
296	183	Amstar & S.	231	-1	0.2	-2	0.0
297	184	Amstar & S.	232	-1	0.0	-2	0.0
298	185	Amstar & S.	233	-1	0.0	-2	0.0
299	186	Amstar & S.	234	-1	0.0	-2	0.0
300	187	Amstar & S.	235	-1	0.0	-2	0.0
301	188	Amstar & S.	236	-1	0.0	-2	0.0
302	189	Amstar & S.	237	-1	0.0	-2	0.0
303	190	Amstar & S.	238	-1	0.0	-2	0.0
304	191	Amstar & S.	239	-1	0.0	-2	0.0
305	192	Amstar & S.	240	-1	0.0	-2	0.0
306	193	Amstar & S.	241	-1	0.0	-2	0.0
307	194	Amstar & S.	242	-1	0.0	-2	0.0
308	195	Amstar & S.	243	-1	0.0	-2	0.0
309	196	Amstar & S.	244	-1	0.0	-2	0.0
310	197	Amstar & S.	245	-1	0.0	-2	0.0
311	198	Amstar & S.	246	-1	0.0	-2	0.0
312	199	Amstar & S.	247	-1	0.0	-2	0.0
313	200	Amstar & S.	248	-1	0.0	-2	0.0
314	201	Amstar & S.	249	-1	0.0	-2	0.0
315	202	Amstar & S.	250	-1	0.0	-2	0.0
316	203	Amstar & S.	251	-1	0.0	-2	0.0
317	204	Amstar & S.	252	-1	0.0	-2	0.0
318	205	Amstar & S.	253	-1	0.0	-2	0.0
319	206	Amstar & S.	254	-1	0.0	-2	0.0
320	207	Amstar & S.	255	-1	0.0	-2	0.0
321	208	Amstar & S.	256	-1	0.0	-2	0.0
322	209	Amstar & S.	257	-1	0.0	-2	0.0
323	210	Amstar & S.	258	-1	0.0	-2	0.0
324	211	Amstar & S.	259	-1	0.0	-2	0.0
325	212	Amstar & S.	260	-1	0.0	-2	0.0
326	213	Amstar & S.	261	-1	0.0	-2	0.0
327	214	Amstar & S.	262	-1	0.0	-2	0.0
328	215	Amstar & S.	263	-1	0.0	-2	0.0
329	216	Amstar & S.	264	-1	0.0	-2	0.0
330	217	Amstar & S.	265	-1	0.0	-2	0.0
331	218	Amstar & S.	266	-1	0.0	-2	0.0
332	219	Amstar & S.	267	-1	0.0	-2	0.0
333	220	Amstar & S.	268	-1	0.0	-2	0.0
334	221	Amstar & S.	269	-1	0.0	-2	0.0
335	222	Amstar & S.	270	-1	0.0	-2	0.0
336	223	Amstar & S.	271	-1	0.0	-2	0.0
337	224	Amstar & S.	272	-1	0.0	-2	0.0
338	225	Amstar & S.	273	-1	0.0	-2	0.0
339	226	Amstar & S.	274	-1	0.0	-2	0.0
340	227	Amstar & S.	275	-1	0.0	-2	0.0
341	228	Amstar & S.	276	-1	0.0	-2	0.0
342	229	Amstar & S.	277	-1	0.0	-2	0.0
343	230	Amstar & S.	278	-1	0.0	-2	0.0
344	231	Amstar & S.	279	-1	0.0	-2	0.0
345	232	Amstar & S.	280	-1	0.0	-2	0.0
346	233	Amstar & S.	281	-1	0.0	-2	0.0
347	234	Amstar & S.	282	-1	0.0	-2	0.0
348	235	Amstar & S.	283	-1	0.0	-2	0.0
349	236	Amstar & S.	284	-1	0.0	-2	0.0
350	237	Amstar & S.	285	-1	0.0	-2	0.0
351	238	Amstar & S.	286	-1	0.0	-2	0.0
352	239	Amstar & S.	287	-1	0.0	-2	0.0
353	240	Amstar & S.	288	-1	0.0	-2	0.0
354	241	Amstar & S.	289	-1	0.0	-2	0.0
355							

مكتبة الإمام الصادق

MTNFS—Contd

Mark & Spencer	29	RTZ	38
Midland Bk	35		
Morgan Grenfell	35		

**A selection of Options traded is given on the
London Stock Exchange Report Page**

WORLD STOCK MARKETS

AUSTRIA				FRANCE				GERMANY (continued)				NETHERLANDS (continued)				SWEDEN (continued)			
March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar
Blue Chip	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020

JAPAN				NETHERLANDS				NETHERLANDS (continued)				NETHERLANDS (continued)				NETHERLANDS (continued)			
March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar
Blue Chip	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020	Deutsche Bank	1,020	1,020	1,020	ABN AMRO	1,020	1,020	1,020	Volvo	1,020	1,020	1,020

CANADA

TORONTO				MONTREAL			
March 23	Feb	Mar	Mar	March 23	Feb	Mar	Mar
Blue Chip	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020

OVER-THE-COUNTER

Nasdaq national market, closing prices

Continued from Page 39				Continued from Page 39			
Stock	High	Low	Last	Stock	High	Low	Last
Blue Chip	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020
Continental	1,020	1,020	1,020	Alcatel	1,020	1,020	1,020

INDICES

NEW YORK

DOW JONES

Mar	Mar	Mar	Mar	Mar	Mar	Mar	Mar
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low

Mar	Mar	Mar	Mar	Mar	Mar	Mar	Mar
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low
22	21	18	17	High	Low	High	Low

GRIFF LONDON PRICE CHANGES YESTERDAY

(Prices in pence unless otherwise indicated)

Stock	High	Low	Last
Blue Chip	1,020	1,020	1,020
Continental	1,020	1,020	1,020
Continental	1,020	1,020	1,020
Continental	1,020	1,020	1,020

TOKYO - Most Active Stocks

Wednesday, March 23, 1988

Stock	High	Low	Last
Blue Chip	1,020	1,020	1,020
Continental	1,020	1,020	1,020
Continental	1,020	1,020	1,020
Continental	1,020	1,020	1,020

Have your F.T. hand delivered . . .

. . . at no extra charge, if you work in the business centres of

HELSINKI & ESPOO

Helsinki (90) 694 0417

And ask for details.

FINANCIAL TIMES

Financial Business Newspaper

100

...are you
...deliv

Continued on Page 39

[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

Stock	Sales	High	Low	Last	Chg.	Stock	Sales	High	Low	Last	Chg.	Stock	Sales	High	Low	Last	Chg.	Stock	Sales	High	Low	Last	Chg.	
AWARD	70	45	34	134	14	+	CGF	76	14	1029	27	206	26	10	36	129	100	100	100	100	100	100	100	100
ADCO	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
ADK	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1
Adm	21	470	324	224	23	+	CGZ	122	31	1012	51	31	32	5	1	1	1	1	1	1	1	1	1	1

Continued on Page 37

**Have your F.T.
hand delivered . . .**

AMERICA

EUROPE

Bond weakness pulls equities down slightly

Takeover rumours return to fuel general advance

Wall Street

WEAKNESS in bonds and lack of conviction undermined the Wall Street equity market, which drifted aimlessly yesterday, writes Janet Bush in New York.

The Dow Jones Industrial Average was in negative territory for the bulk of the session but then perked up again towards the close to end 149 points higher at 2,067.64. Activity picked up from the very quiet sessions on Monday and Tuesday but, with 160th shares changing hands, was still subdued compared with the end of last week when volume was more than 300m shares daily.

The bond market failed to consolidate on its steadier performance on Tuesday and closed around 4 lower. The Treasury's benchmark 30-year long bond closed 4 lower to yield 8.734 per cent.

Two important economic releases provided evidence of healthy economic growth in the

fourth quarter of 1987 coupled with subdued inflation. The figures had little impact on equities but tended to undermine bonds.

A 0.2 per cent increase in the consumer prices index in February, giving an annual rate of only 2.1 per cent, was in line with expectations. If the bond market were in a more positive frame of mind, these figures could have provided some support.

Real GNP growth was revised upwards for the fourth quarter to 4.8 per cent from 4.5 per cent reported previously. Most market estimates had looked for an upward revision to 4.6 or 4.7 per cent.

The key revisions to the data pushed consumer spending higher and non-farm inventories lower, suggesting that the economy was genuinely stronger than previously thought.

The equity market's sluggish performance this week has worried a lot of traders who had been looking for a sustained and gradual rally from the post-crash

highs reached at the end of last week.

There are two characteristics of current trading which are beginning to undermine confidence in the market's health.

First, the rise in second-tier stocks, which had counterbalanced weakness in blue chips and been hailed as a sign that the market was on the mend, has slowed. Second, the only real interest in the market is in "story" stocks of companies with special announcements to make and those involved in the current explosion in takeover activity.

The weakness of the bond market, which in the course of this year has gradually shifted from hopes of a weak economy and, therefore, lower interest rates to fears of a rise in interest rates to head off higher inflation, has also begun to damage equities.

One long-running takeover battle seems to have ended after the announcement that Black & Decker had dropped its bid for American Standard in return for

a \$25m payment from Kelco & Co. which last week agreed to acquire American Standard for \$2.5bn. American Standard dropped 4% to \$78, while Black & Decker rose 3% to \$20.

The battle for Federated Department Stores continues unabated after Campeau's announcement of a two-tier offer worth \$73 a share which tops the rival bid worth \$68 a share by H. H. Macy & Co. Federated rose 4% to \$58, its highest level this year.

One of the day's most active stocks was CalMat, which surged 13 1/2% to \$45 after news that it had received a takeover offer of \$40 a share from Brierley Investment.

Grolier, the US publisher and distributor of encyclopaedias, rose 4% to \$28 1/2 after announcing that it had rejected a \$21 a share takeover bid from Hachette, the French publisher, and saying that it had made preliminary contact with a number of other possible bidders.

Moore McCormack Resources rose 1 1/2% to \$38 1/2 after it announced details of its recapitalisation plan. The company said it would pay special dividends totalling \$24.60 in cash and \$6.62 principal amount of debentures for each common share. Southdown, whose bid Moore turned down, was up 2% to \$42.

Canada

STRONG COMMODITY prices pushed Toronto stocks broadly higher, with base metals and golds leading the advance.

The composite index gained 29.34 to 3,557.79 as advances outnumbered declines by 496 to 394 on moderate turnover of 25.1m.

Stronger nickel prices had an impact on heavily weighted Inco and Falconbridge. Inco gained 3% to C\$31 1/2 and Falconbridge rose 3 1/2% to C\$24 1/2. Noranda climbed 3 1/2% to C\$24 1/2 and Alcan Aluminium rose 3 1/2% to C\$36 1/2.

London

EXPORTING stocks were hit by renewed upward pressures on sterling and the FTSE 100 index lost 3.2 to 1,832.2.

Investors continued to shy away from international favourites ICI on fears of the effect of the strong pound on its overseas profitability. Volume rose, helped by selective activity in stocks reporting results.

has created in the market over the past three weeks.

A fresh bout of takeover speculation injected some life into trading to lift the market late in the day so it ended the monthly account on a higher note. The Indicator of Tendence added 0.80 to 105.20.

Cle du Midi, the insurance group that has been a frequent target of speculation, gained FF86 to FF133.2, and its property unit Immeubles de la Plaine Monceau added FF14 to FF36.1.

Mail order house La Redoute, facing a bid from department store chain Printemps, led retailers with a FF45 rise to FF22.70. Recently privatised issues were comforted by Mr Mitterrand's statement that he did not plan renationalisations if elected. CGE rose FF3.60 to FF22.70, Havas FF7 to FF25.19 and CCF FF1.70 to FF1.70.

Paribas ended 40 centimes to FF306.80. Engineering group Schneider shed FF1 to FF254 after its revised offer for 100 per cent of Télémelec, still suspended. BRUSSELS was lifted by another round of takeover speculation which sent shares in retailer Delvaux soaring.

The stock gained BFR90, or 84 per cent, to BFR5,000 in extremely heavy trading, a pattern similar to that of retailer GB-Inno which jumped early this month on bid speculation. GB-Inno also saw active buying yesterday and rose BFR30 to BFR1,230.

Takeover target Société Générale, which heard on Tuesday that Mr De Benedetti's French holding company had not managed to acquire a 50 per cent stake, was trading on the cash market BFR170 higher at BFR1,130. Générale de Banque, which announced an 8.7 per cent profit rise for 1987, lost BFR80 to BFR5,610 and the cash market index closed 10.77 up at 4,973.21.

AMSTERDAM remained buoyant, closing slightly higher amid takeover rumours. The CDS all-share index rose 0.5 to 86.2. Biotechnology group Gist-Broekmans, a rumoured target, rose FI 1.30 to FI 35.50 on turnover of 259,666 shares for a two-day advance of FI 2.80 after predicting better-than-expected 1988 results. The insurance sector was also firm, with Aegon up FI 1.20 at FI 73.50.

Textile group Nijverdal-Ten Cate eased 60 cents to FI 79.40 on news it would buy the European denim operations of Burlington Industries of the US.

STOCKHOLM recovered from early losses and closed slightly higher, helped by speculation following the suspension of trading in Skandia and Skandia International.

The two were suspended before announcing that they were taking a 25 per cent stake in Norway's Vesta Group.

The Affarsveien general index rose 6.1 to 807.6, with most sectors gaining. Maker Volvo B shares added SKr3 to SKr338 after Tuesday's news of its six-year SKr30bn investment programme.

ZURICH remained fairly static in spite of a rise in volume and the Credit Suisse index gained 2.6 to 491.8.

Hoffmann-La Roche caused the greatest stir, with its bearer shares gaining SFr21,500 to SFr173,000 in heavy trading amid speculation it will change some of its expensive bearer shares into cheaper registered stock.

Machinery manufacturer Sulzer moved up SFr75 to SFr4,750, denying reports that it had reached agreement with financier Mr Tito Tetamanti's syndicate, which is looking to buy the company.

ASIA

Large-capitals kindle moderate Nikkei rise

Tokyo

AFTERNOON profit-taking took share prices off the day's highs in Tokyo yesterday, but the market closed higher on continued strong demand, especially for large capitals, writes Shigeo Nishizaki of Jiji Press.

The Nikkei average ended the day moderately higher, up 54.48 at 25,895.23, after reaching 25,959.85 mid-morning. The day's low of 25,845.86 came at the start of the session. Volume rose from 1.2bn shares on Tuesday to 1.5bn, with declines leading advances by 509 to 396, and 139 issues unchanged.

Trading centred on large-capitalisation stocks, shipbuilders and heavy electricals, with such shares accounting for more than half of the volume of stocks on the 10 most active list.

Nippon Steel, the most active with 273.8m shares traded, closed 79 higher at Y484. The issue nearly monopolised buying activity in the afternoon, with Nomura Securities purchasing 99.5m shares.

Sumitomo Metal Industries added Y10 to Y398 and was second most heavily traded with

130.4m shares changing hands. Kobe Steel rose Y8 to Y344, Mitsubishi Electric went up Y4 to Y30 and Toshiba added Y3 to Y812.

Some stocks related to waterfront redevelopment projects were hit as Nomura Securities switched to selling after heavy buying on Tuesday. Ishikawajima-Harima Heavy Industries lost Y16 to Y854 and Otsuka Cement Y2 to Y889. But Tokyo Gas, also considered one of these issues, jumped Y40 to Y1,270 with the fifth largest trading of 63.9m shares.

Many steels and shipbuilders moved new highs during the day leading to investor caution at high price levels. But individual investors, non-residents and dealers continued to buy, seeking short-term profits, although institutional investors remained inactive.

Among high-tech issues, NEC closed unchanged at Y2,150 and Sony ended Y40 cheaper at Y5,250. Matsushita Electric Industrial gained Y20 to Y2,700 on volume of 13.8m shares and Oki Electric rose Y27 to Y870.

Among biotechnologies, Yamaguchi Pharmaceutical put up Y100 to Y4,360, Eisai added

Y90 to Y2,810 and Shionogi rose Y20 to Y1,880.

The expansion of private equipment investment helped push Sumitomo Heavy Industries Y30 higher to Y820. Amada Y40 to Y1,240 and Omron Tateisi Electronics Y40 to Y2,410.

Elsewhere, Tokyo Electric chalked up a Y140 increase to Y6,370 and Fuji Electric climbed Y10 to Y666. Nippon Telegraph and Telephone gained Y50,000 at one stage, but finished Y20,000 higher at Y2,424m.

Bond prices rallied, with many dealers buying actively in spite of the uncertain interest rate trend in the US. They believe the yield on the 107-cent government bond due in December 1987 will remain within a range of 4.4 to 4.5 per cent for the immediate future, according to market analysts.

The yield on the benchmark 5.0 per cent bond went down to 4.440 per cent from Tuesday's 4.485 per cent.

Investors' demand for some giant-capital issues and blue-chips continued on the Osaka Securities Exchange, but prices sagged in general. The OSE stock average fell 17.41 to 26,082.7 on turnover totalling 267m shares, \$3.50 respectively.

up 35m.

Mitsubishi fell Y100 to Y8,900 and Yoda Wool Spinning Y70 to Y1,480. But Seiren jumped Y70 to Y760, on the planned resumption of dividend payments.

Australia

STRONG institutional buying of shares by foreigners helped push activity took the market higher after a weaker opening caused by profit-taking.

The All Ordinaries index rose 6.2 to 1,427.1, following the previous day's 12-point drop, and the All Industrials index put on 18.5 to 2,300.7.

Buy recommendations from Wall Street brokers sent News Corporation 80 cents higher to A\$15.50.

FAL rose 20 cents to A\$6.10 as investor Mr Joseph Gutnick confirmed he had sold his stake in the company.

Hints from Industrial Equity's Mr Ron Brierley of improvements to his joint A\$225m bid for Bell Resources pushed the target group up 7 cents to A\$1.72, while RHEM and its sister EBM both added 10 cents to A\$2.60 and A\$3.50 respectively.

Hong Kong

RUMOURS that the Hong Kong Association of Banks is going to raise interest rates sharply led to speculative selling and the Hang Seng index ended the day down 32.89 at 2,561.91.

Swire, which reports 1987 results today, fell 10 cents to HK\$17.90 and Jardine Matheson, reporting on Friday, lost 40 cents to HK\$11.90. HK-TVB, which reported a profit rise of 30 per cent after the close, dropped 10 cents to HK\$13.90.

Singapore

SPECULATIVE buying and bargain hunting helped push share prices marginally higher, with encouragement from gains in Tokyo and the steadier dollar.

The Straits Times Industrial index rose 3.65 to 961.5 in moderate trading, aided by small investors, with institutions staying on the sidelines.

QAF rose 6.5 cents to 52.5 cents, with 4.3m shares traded, on rumours of a takeover bid. UOL fell 10 cents to S\$1.37 following news of disappointing results and a proposed rights issue.

SOUTH AFRICA

AN ABSENCE of fresh incentives left the Johannesburg market steady, with gold ending mixed as the bullion price dipped towards the close.

In gold issues, Kloof lost 75 cents to R31.50 and Elandsrand dropped 25 cents to R16, while Vaal Reefs gained R2 to R259 and Harmony firmed 25 cents to R28.50.

Japanese overseas sales drive reaps rewards

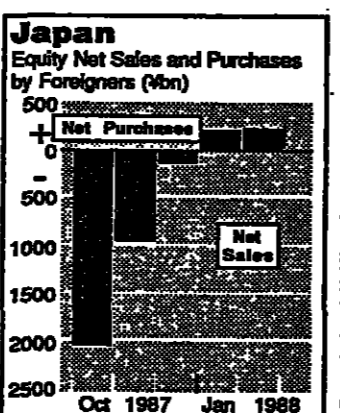
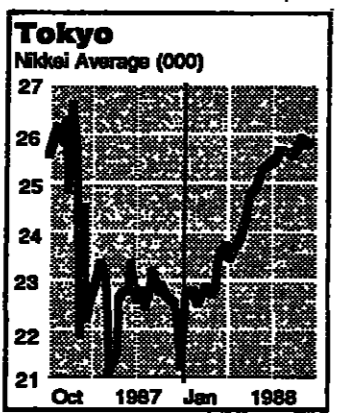
AGGRESSIVE foreign buying of Japanese equities this year has helped fuel Tokyo's dramatic recovery to pre-crash levels and crowned a sales drive by leading securities houses, writes Shigeo Nishizaki of Jiji Press.

Net foreign purchases on the three major exchanges, Tokyo, Osaka and Nagoya, from January 4 to March 12 totalled Y20,800m (\$4.1bn), compared with net sales of Y87.9bn by domestic financial institutions and net purchases of Y66.1bn by investment trusts.

The foreign buying contrasts sharply with last year's, when foreigners sold far more Japanese shares than they bought. Their net sales in 1987 reached a record high of Y7,192.8bn, which was nearly offset by domestic financial institutions' net purchases of Y6,288.9bn.

There was some net selling by foreigners in the first two weeks of this month, but this has turned back into net buying in the past few days, according to the London office of Salomon Bros, the US investment banking and securities firm. It estimates that after last year's net sales of over \$60bn, foreigners will make \$25bn-\$30bn net purchases this year.

Mr Kenji Kobata, deputy general manager of the equity



research department of Nomura Securities in Tokyo, was one of those who took part in the campaign early this year to persuade European institutions to buy Japanese. He said foreign orders had been coming in for stocks such as Kawasaki Steel in lots of 10m shares.

Leading Japanese issues with high liquidity, such as Nippon Kokan, Ishikawajima-Harima Heavy Industries, Sumitomo Chemical, Mitsubishi Estate, Tokyo Marine and Fire Insurance and Sankyo, were especially popular with foreign investors, he added.

Buy orders placed with large securities houses have come mainly from European pension funds, investment trusts and banks, especially in the UK. Institutional investors in Italy, which liberalised controls on investment abroad last year, placed buy orders for Japanese shares early this year for the first time.

Mr Masao Komatsu, executive vice president of Yamachi Securities, said foreigners had been attracted by Japan's good economic fundamentals since the global stock market crash in October and by Tokyo's lead in the share price recovery.

He said many foreign fund managers now believed they could not significantly improve the performance of their international portfolios without diversifying into Japanese equities, which account for as much as 42 per cent of the total capitalisation of leading stock markets around the world.

This view is shared by other securities firms. Mr Masayoshi Katsuta, president of Kinokuniya Benson Investment Management, said international investment that ignored Japanese shares was unorthodox.

Mr Masazumi Konishi, the director of the equity division of Yamachi Securities who stayed in Europe and the US until early March as part of the sales drive, said many foreign fund managers were strongly interested in Japanese shares. But, he added, they were concerned about the high average price-earnings ratio of 81.5 for the 225 selected shares represented in the Nikkei stock average. He believed the heavy foreign buying so far this year would not continue.

However, many large securities houses expect the Nikkei average to hit an all-time high next month as the strength of heavy buying by domestic institutions which follow foreign investors.

APPOINTMENTS

Promotions at Allied-Lyons

ALLIED-LYONS has made the following appointments to its board from April 19: Mr Charles E. Arnett (US), director of J. Lyons & Co., chairman of Allied-Lyons North America Corporation; Mr David Beatty, senior executive vice president, operations, of the joint management board of Hiram Walker-Allied Vintners; Mr Derrick Brown, director and chairman of the grocery and frozen and chilled foods sectors of J. Lyons & Co.; Mr John A. Giffen (Canadian), an executive vice president of the joint management board of Hiram Walker-Allied Vintners (Canada); Mr Michael Marshall, director of Allied Breweries, and managing director of Ind Coope; and Mr Donald Marshall, director of Allied Breweries, and managing director of Topley Walker.

with Mr ten Bos as chairman of the combined operation.

Mr R.E. Gammage has been appointed company secretary of THEMA ROBERTS (WESTMINSTER) PLC, March 21. He succeeds Mr J.W.T. Saunders, who is retiring.

WILLIS CONSULTING has appointed Mr Martin Croxley as non-executive adviser to the board on Scotland.

Mr Richard A. Dabell has been appointed deputy group finance director of WILLIS FABER from March 28.

J.H. MINET & CO has appointed Mr Ian Archbell as an administration director of the fine arts and jewellery division.

CRC SECURITIES has appointed Mr Francis Brereton as investment director and chairman of CRC Asset Management (Guernsey). He was a director of asset management at EBC Amro.

HUNGARIAN INTERNATIONAL BANK has appointed Mr Martin Ashurst as a manager in its financing department. He joins from the Scandinavian Bank, where he was manager in charge of forfeiting operations.

Mr Richard Allan has been appointed director, policy unit, at BRITISH RAILWAYS BOARD from May 16. He is on secondment for two years from the Department of Transport, and succeeds Mr Philip Wood who is returning to the Department.

M&G ASSURANCE GROUP has appointed Mr Robert McCormick and Mr Tony Shearer to the board. Mr McCormick is a consultant to the British Insurance and Investment Brokers Association. Mr Shearer is finance director of the parent company, M&G Group.

Mr Frans ten Bos has been appointed executive director of WACE GROUP, representing the printing division. He was one of the founding directors of Bulls Frierson which the group acquired in April 1986. Since then Bulls Frierson has been merged with Wace's subsidiary Grandprint.

Manchester Business School

INTERNATIONAL BANKING CENTRE

OPEN BANKING COURSES AT MBS

The International Banking Centre at Manchester Business School offers intensive residential courses on modern banking concepts and techniques.

SENIOR BANKERS' COURSE

For Bankers and Senior Managers in financial services companies aged 35-55.

★ Trends in global banking strategy ★ The impact of securitisation ★ Electronic banking ★ Diversification of non-banks into traditional banking markets ★ Analysis of management problems specific to participants' own organisations.

Course 1: May 9 - May 27 1988 Course 2: Oct 10 - Oct 28 1988

COMMERCIAL BANKING COURSE

An advanced oriented 6-week course designed for commercial bankers who are working currently in either branch banking or advances control.

★ Credit Assessment ★ Management Accounting Based Lending ★ Project Appraisal ★ Trade Finance ★ Cases in Lending ★ Advances Control

June 5th - July 15th

For further details on these courses please contact the Banking Centre Administrator, Tel: 061-275 6333, or fill in the coupon below.

Please send me details of the following courses (tick course):

Senior Bankers' Course ☐ Commercial Banking Course ☐

NAME _____

COMPANY _____

POSITION _____

ADDRESS _____

TEL NO. _____

MANCHESTER BUSINESS SCHOOL, INTERNATIONAL BANKING CENTRE, SOUTH STREET WEST, MANCHESTER M2 6PA. BT6

UNIVERSITY OF MANCHESTER

Small Business

The Financial Times proposes to publish this survey on:

22nd April 1988

For a full editorial synopsis and details of available advertisement positions, please contact:

Brett Trafford on 01-248 5116

or write to him at:

Bracken House 10 Cannon Street London EC4P 4BY

FINANCIAL TIMES EUROPE'S BUSINESS NEWSPAPER

Jointly compiled by the Financial Times, Goldman, Sachs & Co., and Wood Mackenzie & Co. Ltd., in conjunction with the Institute of Actuaries and the Faculty of Actuaries

NATIONAL AND REGIONAL MARKETS	WEDNESDAY MARCH 23 1988					TUESDAY MARCH 22 1988				DOLLAR INDEX		
	US Dollar Index	Day's Change	Pound Sterling Index	Local Currency Index	Gross Div. Yield	US Dollar Index	Pound Sterling Index	Local Currency Index	1987/88 High	1987/88 Low	Year ago (approx)	
Figures in parentheses show number of stocks per grouping												
Australia (89)	118.01	+0.8	95.32	105.84	4.02	117.06	94.86	105.34	180.81	85.36	120.14	
Austria (16)	92.05	+0.3	74.35	80.87	2.59	91.76	74.36	80.83	102.87	84.35	93.64	
Belgium (48)	135.12	-0.1	109.14	118.13	4.05	135.20	109.56	118.36	139.89	94.63	118.13	
Canada (126)	123.42	+2.4	99.69	111.13	2.96	121.72	98.64	109.91	141.78	98.15	133.77	
Denmark (38)	117.77	+0.2	95.13	103.80	2.77	117.55	95.36	103.27	136.64	88.50	113.09	
Finland (23)	124.28	+1.1	100.38	105.93	1.88	122.89	99.59	105.05	124.83	96.18	113.09	
France (121)	83.56	+0.6	67.49	75.30	4.23	83.09	67.33	74.98	121.82	72.77	120.42	
West Germany (94)	80.58	+0.5	65.09	70.84	2.61	79.90	64.75	70.35	104.93	67.78	87.58	
Hong Kong (4)	100.34	+0.3	81.29	108.73	4.26	100.32	82.11	101.54	158.68	93.50	130.50	
Ireland (14)	122.04	+0.1	98.57	108.73	4.22	121.88	98.77	108.73	160.22	93.50	130.50	
Italy (94)	78.65	+0.3	63.53	73.54	2.62	78.40	63.53	73.51	112.11	62.99	103.09	
Japan (457)	147.56	+0.6	135.43	124.39	0.53	146.74	135.12	123.96	167.66	100.00	127.19	
Malaysia (56)	121.31	+0.5	97.99	120.24	3.22	120.73	97.83	119.73	198.64	93.76	133.64	
Mexico (14)	139.22	-4.3	112.45	247.06	1.02	145.55	117.95	263.24	422.59	90.07	146.47	
Netherlands (37)	109.72	+0.4	88.63	95.12	4.84	109.29	88.57	94.85	131.41	87.70	112.02	
New Zealand (29)	78.55	-0.2	63.45	62.74	5.39	78.74	63.61	63.02	138.99	64.42	97.00	
Norway (24)	123.56	+2.3	99.80	106.62	2.85	120.81	97.90	104.56	185.01	95.51	127.09	
Singapore (26)	113.57	+0.4	91.73	105.53	2.19	113.08	91.63	105.08	174.28	81.21	122.28	
South Africa (61)	135.96	-0.3	109.82	80.32	5.29	136.41	110.54	80.59	198.09	100.00	162.56	
Spain (43)	148.89	+1.6	120.26	127.23	5.35	146.51	118.75	125.83	168.81	100.00	110.16	
Sweden (32)	118.66	+0.7	95.83	104.74	2.62	117.73	95.45	104.27	136.64	88.50	113.09	
Switzerland (53)	84.72	+0.7	68.43	73.40	2.32	84.12	68.17	73.09	111.11	73.65	96.93	
United Kingdom (527)	139.27	+0.1	112.90	112.90	4.29	139.17	112.78	112.78	162.87	99.65	132.76	
USA (585)	109.62	+0.1	88.54	109.62	3.45	109.56	88.79	109.56	137.42	91.21	123.57	
Europe (964)	109.94	+0.4	88.80	93.35	3.76	109.53	88.76	93.23	130.02	92.25	114.25	
Pacific Basin (677)	143.08	+0.5	131.72	131.86	0.70	142.21	131.45	131.47	163.08	100.00	126.30	
Euro-Pacific (644)	141.84	+0.5	114.57	116.53	1.65	141.15	114.39	116.25	143.65	100.00	121.50	
North America (711)	110.35	+0.1	89.14	109.73	3.42	110.21	89.31	109.60	137.55	91.68	124.11	
Europe Ex. UK (637)	91.75	+0.7	74.11	81.34	3.27	91.15	73.87	80.94	111.97	78.89	102.79	
Pacific Ex. Japan (220)	107.80	+0.1	87.07	99.71	4.07	107.65	87.24	99.75	164.03	82.92	115.44	
World Ex. US (1942)	141.25	+0.5	114.01	116.08	1.73	140.44	113.81	115.77	143.38	100.00	122.40	
World Ex. UK (2201)	128.94	+0.3	103.36	113.57	2.08	127.47	103.30	113.69	138.82	100.00	121.91	
World Ex. Japan (1566)	128.91	+0.4	101.42	113.95	2.27	128.65	101.24	113.64	138.47	100.00	121.61	
World Ex. Euro (1770)	104.10	+0.2	89.17	103.35	3.58	110.17	89.28	103.24	134.22	92.98	120.81	
The World Index (2427)	128.96	+0.4	104.16	113.82	2.29	128.50	104.13	113.60	139.73	100.00	122.87	

SECTION III

FINANCIAL TIMES
SURVEY

The impact of
converging
technologies,
electronics, new
materials and

computerised production techniques is having a profound effect on the motor industry and its suppliers worldwide. It also has far-reaching consequences for drivers, too, as John Griffiths explains here

The test of intelligence

THE planned takeover of the UK's Rover vehicles group by British Aerospace, whatever the detailed arguments about its merits, provides one more example of an accelerating, and now seemingly unstoppable, trend.

This is the convergence of previously disparate industries around new core technologies, embracing mainly electronics but also new materials and the methods of working and assembling them.

No-one would expect to see a jet-powered Rover emerge from such a takeover (even less a Rover-powered jet). But there is now a growing motor industry consensus that the computer-controlled, fly-by-wire jet airliner of the future will have its counterpart in the computer-controlled, drive-by-wire "intelligent" car of the future, and possibly by the end of the century.

Saab-Scania of Sweden was a pioneer, years ago, in finding synergy between the aerospace and car industries, which the gathering electronic systems revolution has served only to intensify.

More recently, Daimler-Benz of West Germany has acquired the Dornier aerospace and MTU electronics groups. General Motors

has spent \$7.4bn on acquiring Hughes Aircraft and Electronic Data Systems, while Ford's takeover in the aerospace field — many forget it makes satellites as well as new cars — already exceeds \$2bn.

There is plenty of obvious common ground: the systems of sensors, electronic control units and "multiplex" wiring which "active" control systems can equally control suspension, steering and other behavioural aspects of the car.

The jet engine and fuel systems of the fighter share at least the principles of engine and transmission management in the car.

The aerospace industry searches constantly for new materials which are stronger, lighter and cheaper to produce — a quest shared by every car-maker. And, more hesitantly and with a long way still to go, the two industries are groping their way towards common ground, even in the field of manufacturing.

Driven by intense competition, car-makers are chasing hard after highly flexible, computer-integrated manufacturing methods. One objective is to lower yet further the volume threshold at which a single car model

becomes viable. Another, assuming increasing importance, is to be able to build, easily, more versions of a model to appeal to the many niches into which new car markets are fragmenting. A third, again driven by competitive pressures, is to reduce model cycle times.

And within this maze of new production technology, the aerospace industry may well find solutions to some of its own problems of how to make complex parts, in relatively much lower volumes, more efficiently and cost effectively.

This pooling of expertise by two major industries which are right on technology's "cutting edge" should produce benefits to each — and ripple out, also beneficially, to other industries.

Electronics are already having a marked impact on the car. It might not yet be intelligent, but there are certain areas where it is beginning to "think" for itself. Examples of these include anti-skid braking and traction control, which prevents the wheels skidding under acceleration.

The latter provides, in one present-day production car, BMW's latest Seven series, a particularly significant portent of things to come. This is because,

for the first time, there is no mechanical link between the driver's foot on the accelerator and the engine's response.

If the driver thrusts the accelerator to the floor when grip is inadequate, a computerised interface ignores such fallible human over-enthusiasm. Instead, it orders the engine to accelerate only at a rate which, wheel sensors have told the computer system, can be sustained by the tyres.

The ramifications of this aspect of "in-car high-tech" raise some fundamental issues about the car of the future which are a long way from being resolved. The technology is fast becoming available for:

"Active" steering in which, like the BMW's accelerator, the driver's steering wheel conveys, via an electronic control unit, only digital inputs to the steering system itself. Again, over-correction of a skid, for example, could lead to the driver's input being partly ignored.

Collision avoidance, in which infra-red, sonar or radar systems continuously monitor the safe distance to a vehicle ahead and, if necessary, decelerate or even brake the car to preserve it.

Questions then arise, from the

vehicle marketing point of view, whether drivers will actually want such systems in their cars of the future. And from a broader viewpoint, including the potential for legislation, there are possible "Big Brother" aspects to the partial removal of control from the driver in pursuit of collision avoidance.

Many of these questions are already being addressed by the pan-European "Prometheus" collaborative research project, being undertaken by 12 European vehicle-makers within the EC's overall Eureka technologies research programme.

Prometheus has identified one major goal of at least halving the number of Western Europe's 50,000 annual road deaths, by the turn of the century.

It hopes to create a safer environment for cars to operate in, as well as cars which are intrinsically more safe to use.

Some of the avenues being explored by Prometheus, however, are uncontroversial and promise both big benefits to road users and the creation of vast new markets for all manner of electronic and other component suppliers. Most notable is an automatic guidance system, linking in-car units with a network of

traffic-light mounted information beacons, envisaged eventually for the whole of Europe and possibly beyond. Trials are just beginning in West Germany, the UK and France.

Other sophisticated car electronics yet to come are likely to be seen as unalloyed benefits. "Active" suspension in its proper sense, using two-way hydraulic rams instead of conventional springs and shock absorbers, will lift a car's wheel over a bump, for example, setting new standards of ride and handling.

Vehicle manufacturers, engineering consultancies and all involved in bringing such vehicles into production are not doing it for fun.

As Mr Peter Walzer, head of research at Volkswagen points out, there are three principal pressures on the car industry taking it ever deeper into high technology. One is that rapidly maturing markets are limiting sales growth, forcing manufacturers to increase value per vehicle.

The second comes from legislators seeking to counter some of the adverse impacts of the car, for example through safety and emissions laws.

Finally, observes Dr Walzer, manufacturers must now vie for

the attention of "customers, at least in highly industrialised countries, who have more and more of their incomes left over to spend on technically sophisticated luxuries, sometimes sensibly, and sometimes not so sensibly."

Taken together, they represent far-reaching consequences for all involved in making the vehicles or supply their components and production systems.

Precise estimates vary, but it is widely accepted that the electronics content of cars is now on a sharp upwards curve. Dr Walzer, for example, estimates that the level will rise from an average of 6 per cent of the manufacturing cost of a car now to around 24 per cent by 1994.

However, there are already wide variations even within one model of car. A range-topping, fuel-injected, anti-skid braked, four-wheel-drive model can be twice as expensive as the base model.

For the components industry, this is now a serious issue. For it has begun to dawn on the vehicle manufacturers that the lion's share of the value-added content on more up-market models is going not into their own pockets but into those of the high-tech

components suppliers such as West Germany's Robert Bosch.

Growth in the variety and absolute level of demand for advanced components make it certain that those independent component suppliers which innovate in their own right, have a strong design base and are cost-efficient will still be net beneficiaries of the high-technology car evolution.

But they still have to face up to the fact that vehicle makers will want a slice of the action by developing and producing more advanced components "in-house" (at which point the aerospace and electronics acquisitions really start to make sense).

In turn, this could well mean prized crumbs from the highly industrialised states' table for the less-developed world's component industries, for example through producers in high-cost nations making room for the extra high-tech work by farming out more labour-intensive parts.

Yet other factors in this fast-changing kaleidoscope could well work in the independent component industry's favour. For components where long lead times and very heavy capital invest-

Continued on page 22

CONTENTS

Japan: trends among manufacturers — affluence has triggered the quest for luxury motoring; overseas partnerships — when exporting is less easy, foreign friends can help; direct investment overseas — US favoured as labour costs drive manufacturing abroad	3
United States: all eyes of Project Saturn in the race for a world-competitive car, in terms of cost and quality; GM looks to the 21st century	4
Engine technology: balancing power and economy; diesel engines, an important option; electric cars: limited potential	5
Components and materials: plastics content of the car of the future is set to rise substantially; electronics: profile of March, the engineering group	6
Partnership profiles: Cosworth and Ford; Hawtai Whiting and GM; the price of high tech components	9
Profiles: International Automotive Design; Ricardo Consulting Engineers; Planning Research and Systems; ceramics — going cool on radiators; research into automotive electronics	10
Profiles: AVL, the independent research and development centre; Lotus Engineering: enthusiasm for active suspension systems	11
Car design: a complex challenge for designers; the commercial risks for manufacturers	12
Graphics by Bob Hutchison: illustration, page one, by David Worth	



Towards the Car of the Future

IT'S GROWN OUT OF RACING

Controlled acceleration.
Accurate cornering.
Progressive braking.
And lots of anticipation.
Those are the keys to enjoyment in a car like this. It's not for the inexperienced, but oh, how it rewards skilful, fluent driving.

DESIGN The new Sapphire RS Cosworth is a direct descendant of the famous winged racer — The World Touring Car Champion. It's not a limited edition but a full scale production car. As you'd expect of a Cosworth, it's exceptionally powerful.

But this is power of a different kind; not so much raw as refined. When the turbo boost comes in (which it does at only 2000 revs) it comes in progressively and builds smoothly. Drive it accordingly. Everything is on your side. A superb driving position with marvellous all round vision. Recaro seats that hug you in place. Brilliant headlights. A crisp, close ratio gearbox with

short, precise throws. Perfectly weighted power steering. Compliant suspension, for sure-footed handling. And, of course, those wonderful anti-lock brakes. It's always rewarding to drive such a car. It draws on your ability and is all the more satisfying for that. So how much, you might wonder, does this Cosworth cost? Less, perhaps,

than you think. Especially compared with other cars of comparable performance (and how many of those have four seats?) The price is £19,000*. For further information, call free on 0800 010112. Or, better still see the new Sapphire RS Cosworth at Ford RS dealers now. Developed on the race track there's little to touch it on the road.

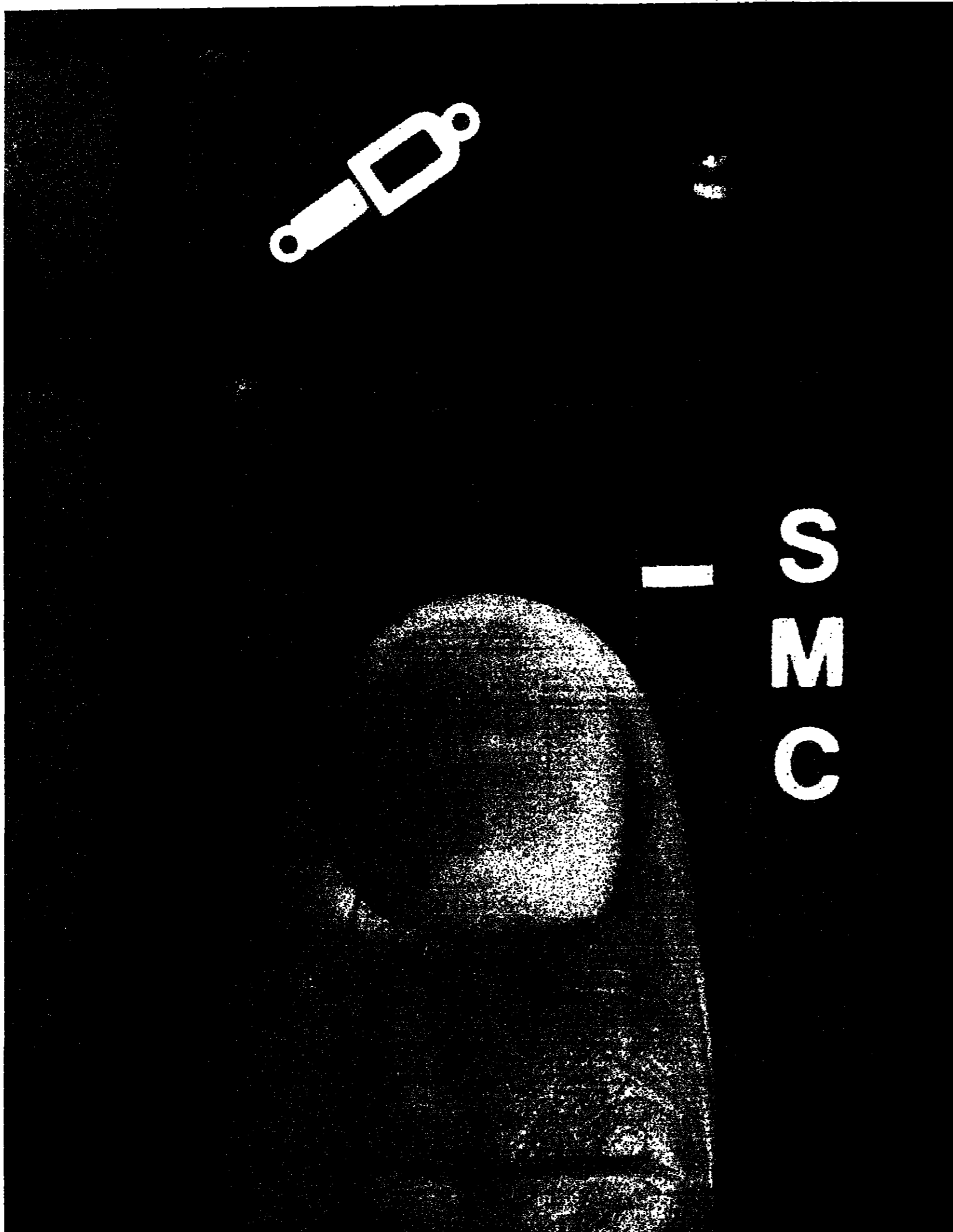


*Maximum retail price as at February 26th 1988 excluding delivery and number plates.

Sapphire RS Cosworth.

Sierra

IF YOU DON'T FANCY THE SUSPENSION YOU CAN ALWAYS CHANGE IT.



You won't need a degree in engineering. All that's required is your finger.

Flick a switch on the dashboard of the new Senator CD and the ride changes.

In the 'Comfort' position it softens.

The suspension relaxes to soak up the bumps and smooth your journey. (Perfect for those patchwork city streets.)

A firmer ride and more positive handling are the virtues of the 'Sports' setting.

And a snaking country lane is the place to fully appreciate it.

The third setting, 'Medium', is the one

you will use for most day-to-day driving.

It gives a ride that is both controlled and comfortable.

A computer oversees the Electronic Ride Control system on the Senator CD.

Every 2.5 milliseconds it checks that all is well.

If it isn't it will try to correct the fault.

And if it can't it will change the ride safely into 'Medium' and warn you on the dashboard.

The computer will also change the ride out of 'Comfort' into 'Medium' if you go over 70mph.

To give you that extra measure of control that a firmer ride bestows.

But then being effortlessly in control is what being in the Senator is all about.

You may never have heard of our unique approach to suspension design, Advanced Chassis Technology.

But you instantly understand what it means when the Senator stays on course as you swerve to avoid a fallen tree.

Then again, you may have read something of ABS braking, standard on the Senator CD.

But it's only when the Senator pulls up in a straight line as a child's ball bounces out in front of you that you realise its true importance.

And Servotronic power steering, doesn't that just make the Senator relaxing to drive?

No, it also makes it safer to drive, because the level of assistance varies progressively according to your speed, so you never lose touch with the road.

From the gearbox with 'Power', 'Economy' and 'Winter' settings, to the height adjustable seat belts, almost everything about the Senator is designed to accommodate different motoring conditions and different motorists.

To accommodate different pockets, there's a range of three models, with prices from £15,275 to £20,414.

Your Vauxhall dealer is awaiting your call to arrange a test drive. All that's required is your finger.

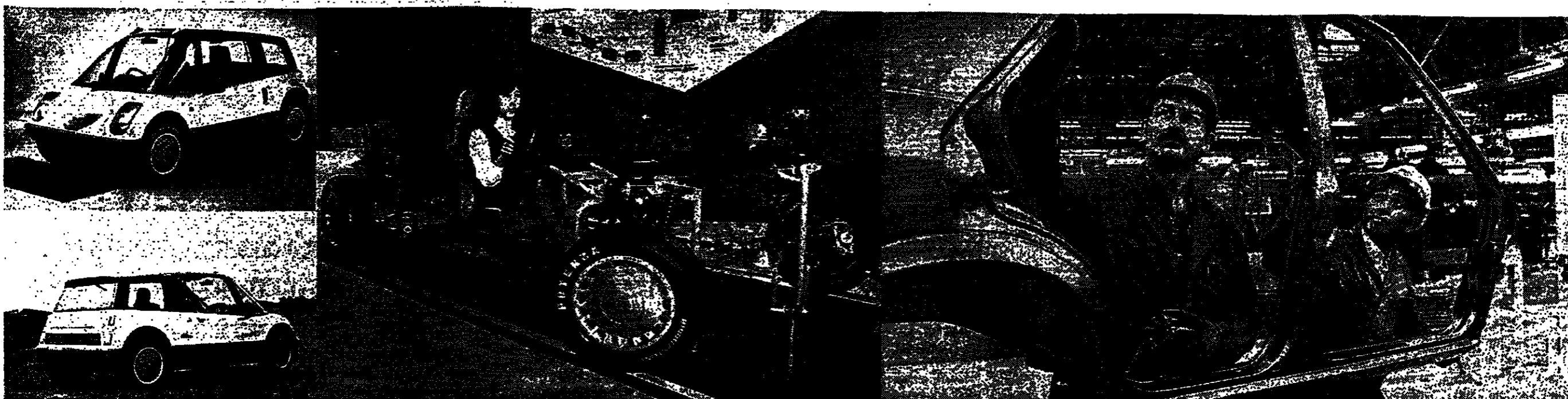
THE SENATOR CD.



**VAUXHALL.
ONCE DRIVEN,
FOREVER SMITTEN.**



CAR OF THE FUTURE 3



The changing face of Japanese car building . . . Left: Daihatsu's Urban Buggy concept car illustrates the industry's willingness to probe new market niches . . . Centre: a Honda Information girl demonstrates the four-wheel steering linkage, which assists manoeuvrability . . . Right: the international approach at Nissan's plant at Washington, Tyne & Wear.

Japanese manufacturers are spending a good deal of money upgrading their cars, combining extravagance with good sense

Affluence has triggered the quest for luxury motoring

ONE THING is already certain about Japan's car of the future: it will cost a lot more than today's Japanese cars.

The reason is not just the appreciation of the yen. Japanese car-makers are lifting their sights beyond the mid-line, economical car they have become famous for. In order to stay ahead of cheaper models from lesser-developed countries, Japan's car of the future will be more powerful, more luxurious and more expensive than any of its cars so far.

The trend to luxury has already taken root. In January, for example, Toyota's up-market Crown was the best-selling car in the Japanese market, with sales more than double those of the previous year. Nissan's new saloon cars, with 3.2 litre engines, are also selling unusually well.

As the Japanese become more affluent, they are allowing their car-makers to enter an era of creative maturity. Both Nissan and Toyota, for example, are setting up new dealership networks to sell as yet-unveiled luxury cars in the US market by next year. Although Honda has been quicker off the mark, with its Acura line of up-market cars, the Nissan and Toyota both insist that they have higher sights than Honda. Japan's two largest car-makers say they have nothing less than Mercedes-Benz, Jaguar and Porsche in their line of vision.

Clues to the new Japanese super-cars were provided at the recent Tokyo Motor Show. Toyota's FXV-11, with a V8, 3.8 litre engine, for example, aims to

provide similar power to a Mercedes with a 5.6 litre engine. The engine has a four-cam 32-valve unit, but is relatively small nonetheless. It incorporates such applications of new materials as magnesium fibre-reinforced metal pistons, ceramic exhaust pipes, and ceramic turbine wheels.

These materials, plus a low drag coefficient and the engine's super turbocharger system, according to Toyota, give the car

As car-makers sought to present a luxury image, even Mitsubishi, known for its sporty Colt cars, showed a car called the Debonair Gallant with a hood ornament standing over a gleaming aluminium grill.

a top speed of 161 mph. And in keeping with the Toyota tradition, the car's designers boast that it consumes less fuel than the European cars it will be competing with.

The Toyota car also incorporates four-wheel steering and four-wheel drive, now almost standard for Japanese cars. In its electronic department, the FXV sports a 10-inch display unit with infra-red touch switches. In addition to containing a CD player, TV and 8mm video system, it has windshield projection displays for speed and warnings, navigational aids and the car's owner manual.

The panel also allows the driver to use his car telephone without lifting his hands from the wheel. The microphone is

built into the steering wheel and the receiver is in the headrest.

Another embryonic Toyota is the AXV-11, with gull-wing doors and rounded, two-seater interior, aimed at the youth market.

Nissan's newest luxury car also combines extravagance with good sense. Its new Cima, recently launched in Japan, is a wide-bodied car with a sleek, expensive look, but containing a new ceramic, turbo-charged engine with just three litre dis-

placement. Still, the engine sports up to 250hp, giving it "comfortable reserves of performance", according to the manufacturer.

Nissan claims that the car is strictly for the fast-growing luxury car market in Japan, aimed to compete with BMW and Mercedes-Benz. Its luxury export, it says, will have a four litre or four litre-plus engine. But the Cima gives the general impression of what will be coming down the road from Japan.

"This is a global design car. Aesthetically, it's spot on - simple, but elegant. It looks coach-buit, like a Mercedes, but it's meticulously done," said Mr Richard Singer, a US export consultant for American auto parts companies, who visits Tokyo reg-

ularly.

Mr Yasuhiko Misaka, general manager of Nissan's product planning department and one of the Cima's designers, said the car reflected "Japanese sensibilities, which are more delicate than Europeans". Specifically, he said, the Cima was quieter at lower speeds than German cars and also handled better at lower speeds. The car will sell in Japan at around ¥5m (\$36,500).

Other car-makers were equally determined to present a luxury image from Japan. Even Mitsubishi Motors, known for its sporty Colt cars, showed a car called the Debonair Gallant with an MMC hood ornament standing over a gleaming aluminium grill. The new Gallant, priced at ¥4.2m, offered leather seats and a three-litre engine.

In addition to other features, the Gallant sports an engine with a double overhead camshaft, four valves per cylinder, two-litre displacement, and 150kw, four wheel independent suspension, which is electronically controlled. It also claims to be the world's first car with needle bearings for the rocker arms.

The Japanese are devoting a great deal of money to the upgrading of their cars. Even Nissan, where profitability is currently under great pressure, is not cutting back on R&D spending. Significantly, Nissan and others are opening design centres in overseas locations. Cars produced in the US or Europe, for example, will be designed increasingly on location, taking into account foreign tastes and passions.

At Honda, for example, spending on R&D has been at the heart of the company's growth. From just 2.3 per cent of sales in 1978, Honda now invests 5 per cent of sales, or more than \$1m, in its R&D annually. Toyota spends about 4 per cent of sales on R&D, or about \$2m a year.

Innovations from other car-makers in Japan include Mazda's

proposed modular sports car, which offers the customer a choice of various high-performance plastic panels to be fitted to a lightweight chassis. The car weighs just 850kg, and its acceleration is enhanced by its feather weight, not the strength of its one-litre engine.

Even Japan's smaller manufacturers, like Fuji Heavy Industries

(Subaru), Isuzu and Daihatsu, are rolling out sophisticated, ultra-sleek cars for the future. Isuzu, for example, has introduced a new ceramic engine which uses new materials for the intake and exhaust valves, cylinder liners, crankshaft and turbine blades. Daihatsu's futuristic TA-X90 holds a one-litre, double overhead camshaft V6 engine, which has

attracted a great deal of attention.

The Japanese look strongest on engine and electronics at this point, with luxury styling still proving elusive. This image of luxury, often held in the eye of the beholder, may prove to be the hardest goal for the Japanese to achieve.

Carla Rapoport

Japan: overseas partnerships

When exporting is less easy foreign friends can help

JAPAN'S MOTOR industry is becoming a true internationalist. With nine manufacturers of cars operating in the home market, car-makers need foreign friends if all are going to survive.

The reasons for this are simple. Japan's nine car-makers face a mature domestic market and a currency that is so strong that exporting is no longer easy. As a result, they are scrambling to cut costs, move production outside Japan and upgrade their product lines. But because of the expected slump in demand worldwide, these goals cannot be achieved quickly enough unless foreign partners are used as much as possible.

Mitsubishi Motors' president, Mr Toyoo Tate, puts it this way: "When I ponder our situation, I recognise we have entered an era of collaboration on vehicles and parts."

MMC has, for example, agreed to sell the Mercedes-Benz line through its dealerships in Japan. It also has strong links with Hyundai in South Korea and Chrysler in the US. MMC and Chrysler are joint venture partners in MMC's Diamond Star plant, currently under construction in the US.

The list of similar links grows almost daily. Some are equity participations, like Ford's stake in Mazda; others are production and design tie-ups, like Honda's deal with the Austin Rover Group of the UK. Some, as in the case of Isuzu and General Motors, represent a lifeline for a weak Japanese company; others represent a swap of, say, new models for marketing strength.

Toyota, Japan's premier car-maker, is forging international links more slowly than some of

its smaller rivals. With about 50 per cent of the domestic passenger car market, Toyota has less need than the others.

Although the company has been slower than others in terms of moving facilities offshore, Mr Hiroshi Okuda, director and general manager of overseas planning, says the trend of moving production out of Japan will certainly continue. He points to China, Spain and Brazil as countries that have not yet been fully exploited by Japan. Earlier this year, Toyota signed an agree-

ment with Volkswagen to co-operate in producing a commercial vehicle in Europe.

But, for the future, partnerships rather than new production facilities are important. The car-maker has ruled out the possibility of building a production facility on its own in Europe, for example. Instead, it is now talking to a variety of European-based auto companies in the hope of finding a partner either to share production facilities or build a new facility.

"We have been approached by European manufacturers with various offers, but we haven't seen any [so far] which could be of mutual benefit," said Mr Tetsuo Ohshima, executive vice president of Toyota in an interview recently. "But we are still looking for a suitable partner. This is our plan. It would be impossible to go [into Europe] on an individual basis."

Indeed, some analysts in Tokyo say that Mazda does not have the corporate strength to remain an independent player in the long term. "I wouldn't be surprised if Mazda ended up as a captive manufacturing affiliate for Ford,"

says Mr Stephen Marvin, an analyst with Jardine Fleming, the securities company, in Tokyo. Mazda admits that 60 per cent of the output of its new US plant will go to Ford, under the Ford brand name. It says, however, that the relationship has mutual benefits. (Ford owns 20 per cent of Mazda's shares.) "In the US," says Mazda's new president, Mr Norihiro Furuta, "they can utilise our technology and we can use their marketing strength." With some determination, he adds: "Some analysts say we cannot survive . . . but we must survive."

Mazda's tie-up with Kia Motors of South Korea, is another key to a three-leg arrangement. Mazda supplies 60 per cent of the parts and components that Kia uses to produce Ford Festivas in South Korea, which are then exported to the US and Canada. Soon, according to Mr Furuta, Mazda will be buying components from Kia, thereby reducing its own costs.

In Isuzu's case, the company is now 41 per cent owned by General Motors. The Japanese company recently decided to start importing passenger cars from Opel, a GM affiliate in West Germany. As a result, some analysts expect that Isuzu's participation in passenger cars may decline in favour of its commercial and leisure car activities. Sales of its Asuka and Piazza cars, known as Impulse in the US, for example, fell by between 15 to 30 per cent last year.

The future for Japanese car-makers, as a result, looks more and more likely to be intertwined with that of the rest of the world's manufacturers.

Carla Rapoport

Japan: direct investment overseas

US favoured as labour costs drive manufacture abroad

IN THE future, Japanese cars will be built in the markets in which they are used. Had Japan suspended all its exports of cars, lorries and motorcycles in 1987, its \$96bn trade surplus would have been half that size.

For reasons of politics and economics, the car industry is taking steps in that direction. They are, and will be, most obvious in America.

Half of all Japanese motor vehicles still end up in America. The appreciation of the yen against the dollar since late 1985 has already forced Japanese manufacturers to hike their prices by about 30 per cent (and make deep cost and profit-margin cuts as well).

Investing in America is the best way to hedge against the risk of another deterioration. It is also necessary for growth. The export of passenger cars to America has been capped at 2.3m units since 1981 by "voluntary export restraint" agreements - quotas by any other name.

Last year Japan's car-makers fell shy of that target anyway, and will do so again in 1988. Japan's five main passenger car-makers are all looking to build more cars in America (and more bits of the cars they do) rather than sending them there.

At current exchange rates, Japanese labour is now more expensive than American or West German labour, and other inputs - land, power and steel all cost more, too. So as early as 1990, Japan is expected to be manufacturing about 20 per cent of its cars in America, as many as it now exports there under quota.

Honda is the acknowledged leader in American production. In 1986 it emerged as America's fourth biggest car supplier (after General Motors, Ford and Chrysler). Honda's first American car plant, in Ohio, started production in 1982.

Last year, Honda built and sold 324,000 cars in America, and shipped another 421,000, compared to Toyota's 609,000 cars, all exports. By 1990, the company expects to be making as many cars in America as it exports.

Producing in low-cost America is one reason why Honda's profit margin is higher than that of its rivals. Honda has emulators, too. In February, Nissan announced the completion of the first stage of a joint development agreement with Ford. It is also operating its own \$745m independent plant in Tennessee.

Last year Nissan built 117,000 cars in America. Toyota will soon

Producing in low-cost America is one reason why Honda's profit margin is higher than that of its rivals. Now it has emulators

be following suit: it is building a plant in Kentucky at a cost of \$1.1bn, another in Canada (cost: \$940m) and has already invested \$500m in NUMMI, a California-based joint venture with General Motors.

With the local market in mind, all the majors have set up design studios in America. Transplanted Japanese factories are still often derided as "screwdriver plants," with the implication that they are just a way to avoid trade fiction and do nothing to support the local economy, even though GM will be distributing 200,000 of the 250,000 cars which the NUMMI facility is meant to turn out.

One way around the protectionists is simply to include more locally-produced components. By 1990, Honda's American operations will be local-sourcing about 65 per cent of the value of each car, barely any lower than the big three American manufacturers manage.

Honda is already building the engines that go into its American-produced cars in America, and the other manufacturers

soon will be as well. Engines account for only about 20 per cent of a car's cost, but producing them is the most high value-added and technologically demanding part of the operation.

Still, the criticisms continue. By 1990, Japanese companies will have added about 2.3m cars to America's annual car capacity (almost twice the total output of Chrysler). This worries a lot of American car-makers. The solution is obvious: the cars will be exported. Thus, Honda is already shipping cars from its plant in Ohio back to Japan. The company plans to be exporting 70,000 cars a year from America by 1991.

This is almost twice the American car industry's total exports last year. Nissan's American arm is due to follow suit. Demand in the Japanese market, jumped by 4.7 per cent last year, as measured by the number of units registered. (Truck registrations shot up by 10 per cent.) But the major car-makers in Japan are already running their plants at nearly full capacity.

Building new plants in Japan is too expensive, so further expansion in demand is likely to be met, increasingly, by imports. Japanese expansion is not confined to America, though it is most advanced there. Japanese car-makers see Europe as increasingly attractive, and direct investment is the only way to proceed. They are already bumping up hard against the EC's 1.8m quota (which may well be cut this year).

Besides a community quota, most countries run their own. In the case of Italy and Spain, the quota is near-enough zero. In Britain, Japanese exports are "voluntarily" limited to 10 per

cent of the market; in France, 3 per cent.

Europe's markets are too protected and fragmented for Japan's car-makers either to make or to sell there nearly as many cars as America absorbs, even though Europe as a whole buys as many cars as America.

Investment presence is limited. Honda has a joint venture with Britain's Austin Rover which turns out jointly-designed cars with both Honda and Austin Rover labels, but it has no capital stakes in the venture.

The only Japanese car-maker with a significant manufacturing presence of its own in Europe is Nissan, which has a plant on Britain's Tyneside. Last December, Nissan announced that it will be increasing capacity to 200,000 vehicles a year by the early 1990s.

The economics of car plants is such that only a plant capable of producing about 200,000 cars a year (and costing as much as \$800m to build) is really viable. Selling that many cars in Europe is almost impossible now, but may become easier.

Asia, which still represents less than 10 per cent of the industry's exports, (though more like 60 per cent of its motorcycle exports) is even harder to deal with; Korea is already a competitor; Thailand, Malaysia and Indonesia soon may be.

Direct investment in all these countries is almost impossible: the car-makers are required to achieve local-content ratios of up to 50 per cent. Majority ownership of manufacturing firms is generally prohibited, though Malaysia has recently loosened some of its rules in order to attract foreign investment.

Asia, so far, is the exception to a new rule: that the age of exports, in the car industry, is almost over and the age of global production about to begin.

John Woodford
Tokyo

ANNOUNCING THE FIRST INTERNATIONAL CONFERENCE ON "TRANSPORTATION FOR THE FUTURE"

BACKGROUND

The quickening pace of technological change, with its growing emphasis on telecommunications, road and air transportation and knowledge-handling capacity, is gradually increasing the network character of the world economy. Faster and more direct modes of transportation are being favoured, both individually and in combination. This inaugural TYF conference will examine these several themes from a multidisciplinary viewpoint. The following issues will be discussed:

- The future of information, communication and transportation systems and their interdependencies, including recent progress toward the "intelligent" vehicle.
- The future of passenger transport and commuting.
- The future of goods transport, including recent advances in "just-in-time" planning and "combi-mode" transportation systems.

SOME OF THE KEY SPEAKERS (15-20 experts will speak)

Dr. Carl Nicolai, Chairman, Scandinavian Link and ASEA/Boveri, Boveri.
Dr. George Eads, Vice President and Chief Economist, General Motors.
Ing. Giorgio Genzani, Managing Director and Chief Executive Officer, Iveco Fiat SpA.
Dr. Haruki Fujii, Research Manager, Association of Electronic Technology for Automobile Traffic and Driving, Japan.
Mr. Tage Karlsson, Project Manager, PROMETHEUS (Program for a European Traffic with Highest Efficiency and Unprecedented Safety) at Volvo AB.
Prof. Yoshio Okano, University of Tokyo.
Prof. William Garrison, University of California at Berkeley.

GENERAL INFORMATION

The conference will be held on Tuesday 24th and Wednesday 25th May 1988 at the Hotel Stokholm in Stockholm, an expanding gateway for transportation (30 minutes south of Stockholm City). Sessions will commence at 9.30 each day. The registration fee of 3,800 Swedish crowns (about USD 650) is payable in advance and includes the cost of the night's accommodation, the social program, all meals and refreshments, and conference documents (including paper). The language of the conference will be English, and the full proceedings will be released by an international publisher.

TRANSPORTATION FOR THE FUTURE

REGISTRATION FORM

Registrations and Enquiries should be addressed to:

Business and Technology Center Södertälje Södertälje 35 S-151 36 Södertälje, Sweden Phone: Int. + 46 735 803 00 Telex: 15345 SFC S Telefax: Int. + 46 735 675 82	OR	Transportation for the Future c/o TEMPLAN Flanagan 5 S-114 51 Stockholm, Sweden Phone: Int. + 46 8791 83 70 Telex: 15886 TSL S Telefax: Int. + 46 8 104222
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------

whereupon a copy of the full program will be forwarded by return mail.

Please register the following person(s) for the First International Conference on Transportation for the Future, Södertälje, 24-25 May 1988:

NAME: _____ POSITION: _____

ORGANIZATION: _____

ADDRESS: _____

COUNTRY: _____ TELEPHONE: _____

TELEFAX: _____ TELEX: _____

Fees are payable in advance of the Conference. Cheques are payable to "Business and Technology Center Södertälje". Bank drafts, telegraphic transfer or international giro are also acceptable. (no Bankaccount no. 208-3095 or Giro no. 493 16 75-0)

☐ Cheque or draft enclosed ☐ Please invoice my organization
☐ Telegraphic transfer arranged ☐ International giro arranged
delegates attending at SEK 3,800:- each

SIGNED: _____ DATE: _____

CAR OF THE FUTURE 4

New concepts from GM

Looking to the 21st century

GENERAL MOTORS, battered for the past several years by critics of its corporate strategies, model ranges and falling North American market share, sought to strike back in January with what it claimed to be "an unprecedented report to the (US) nation" on model concepts and developments to take it into the 21st century.

It took the form of a three-day exhibition in New York which GM chairman, Mr Roger Smith, claimed provided tangible evidence that "GM will maintain its world leadership for years to come".

The exhibition, backed by a \$60m advertising campaign, was aimed at convincing the audience that the long list of restructurings, divestitures, joint ventures, cost-saving programmes and acquisitions - including Hughes Aircraft and the EDS electronics group - that has earmarked GM during Mr Smith's chairmanship, are beginning to pay off.

A total of 24 concept and production cars were displayed at what president Mr Robert Stempel described as GM's largest-ever product unveiling. A working design studio from GM's technical centre in Detroit was

drafted in as part of the promotional razzmatazz, which launched GM into its 80th year of vehicle-making.

The studio itself was able to demonstrate some of the development concepts being introduced by GM in an attempt to catch up with the shorter lead times of, mainly Japanese, rivals.

General Motors plans an all-out effort to develop new products

Even GM acknowledges that there is a great deal of scepticism to overcome, evidenced by a nine percentage points fall in its US market share over the past two years alone.

Nor has it been helped by the stinging remarks about its management methods by Mr Ross Perot, founder of EDS, whom GM subsequently bought out for \$750m last year.

Criticised also for having too many models looking the same, GM is devoting a record amount of its \$2.5bn a year capital spending to new products over the next five years.

The cars include the Chevrolet

Venture, described as a four-passenger sport saloon for the 1990s. It has an upper structure made entirely of glass and a liquid crystal film darkens the roof panel in direct sunlight. It has a voice-actuated radio.

The Pontiac Banshee 2-plus-2 coupe has some features said to be useable in the next generation of its Firebird range. It uses a through-the-windscreen "head-up instrument display," television monitor for rear-view traffic and computer memory-setting for driver controls.

The Buick Lucerne is conceived as an up-market urban car with electronic automatic transmission and silent linear-injection motors for starting.

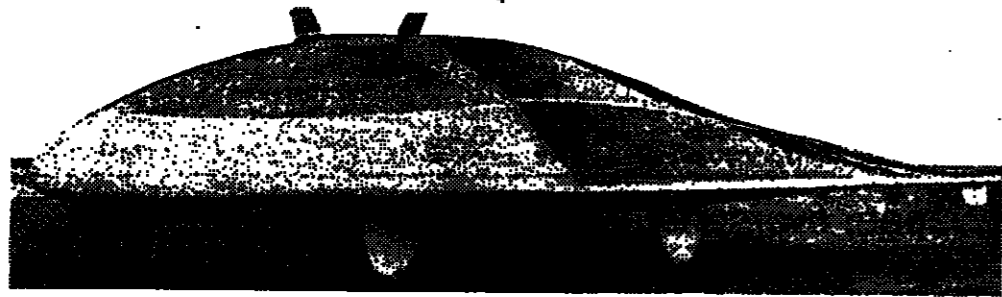
The Cadillac Voyage is more or less a rolling laboratory to evaluate advances in technology, including remote-controlled door actuators.

A peculiarly North American phenomenon, the pick-up truck equipped to luxury car specification, was displayed as the GMC Truck Centaur.

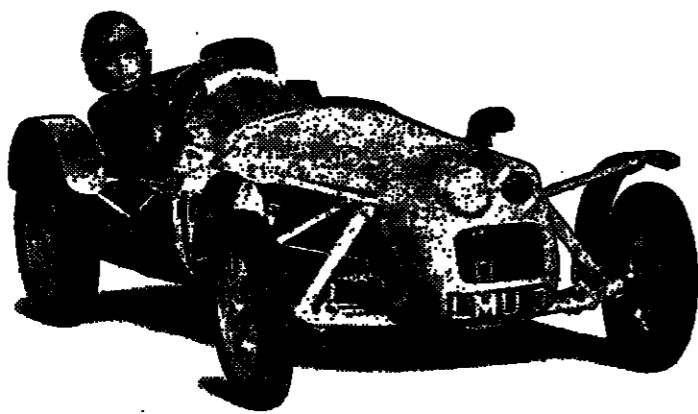
The Oldsmobile Aerotech, developed in part by the UK racing car company, March, and essentially a high-speed test bed for a new engine, the Quad 4.

And the GM Sunracer, an exotic lightweight vehicle with not the slightest prospect of production, but the solar power panels of which took it to victory in the 1,956-mile trans-Australia World Solar Challenge race last November at an average speed of over 40 miles per hour.

John Griffiths



General Motors' exotic record-breaker: the Sunracer with solar-powered panels

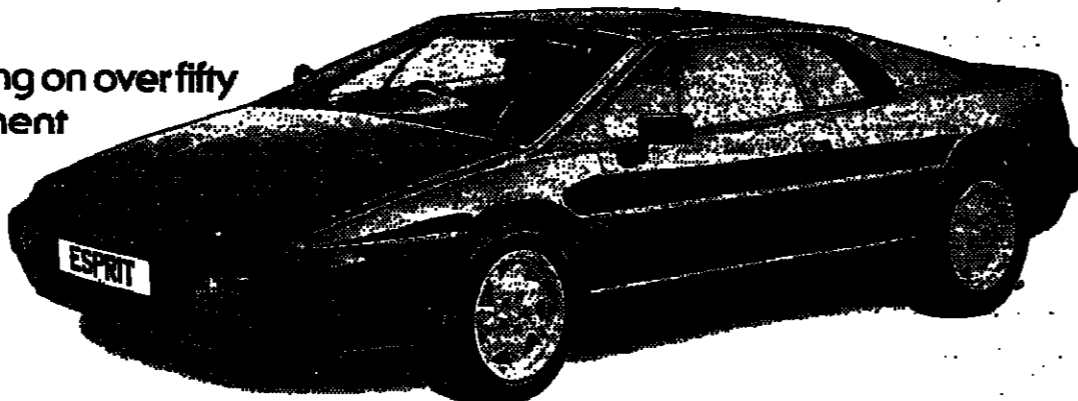


Connoisseurs know Lotus for its exclusive cars with world leading handling, performance and style - a heritage of forty years' of innovation and racing success.

Forty years on... Lotus

The World Motor Industry knows Lotus for its advanced research and development, its creative engineering and design skills.

Currently Lotus is working on over fifty design and development contracts placed by nineteen major manufacturers from around the world.



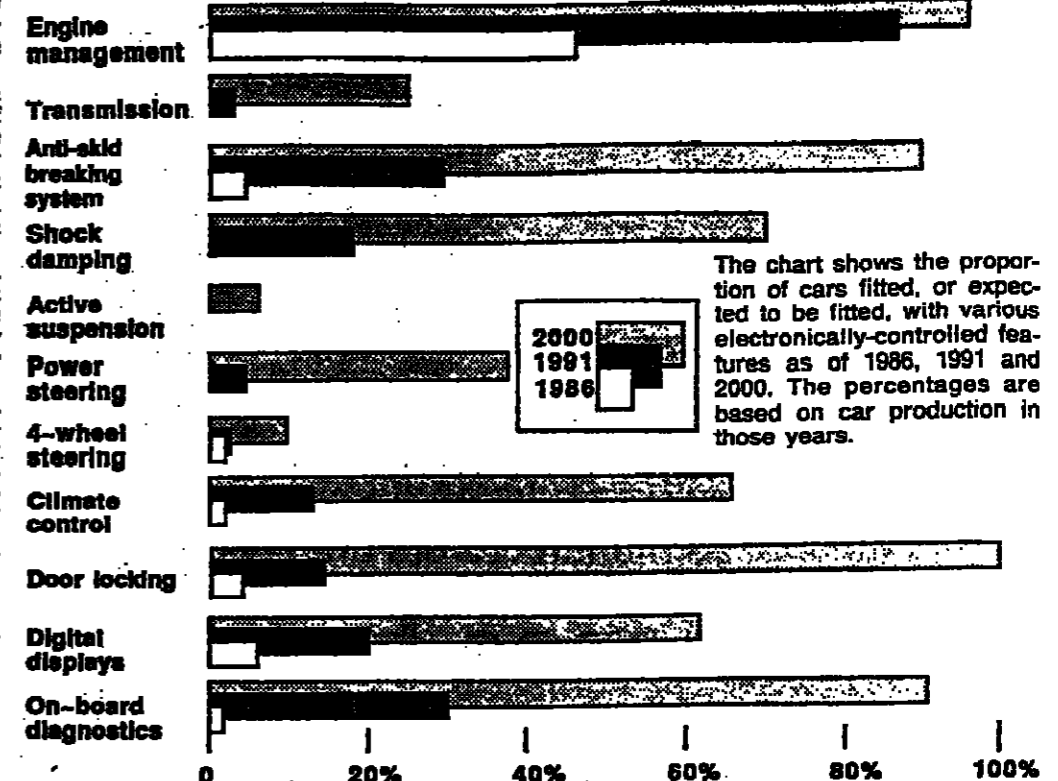
GROUP LOTUS PLC, NORWICH, NORFOLK NR14 8EZ.

A solid testimony to forty years' achievement and a solid base for the cars of the future.

Plans intensify for a world-competitive car in terms of cost and quality

All eyes are on Project Saturn

Systems penetration in the US



The contract provides a base salary for workers that is about 80 per cent of the current salary of General Motors workers. The difference is expected to be made up with Saturn profit sharing and rewards for productivity and quality, a technique General Motors is counting on to add to productivity gains.

The contract also contains fewer rules covering workers than in other General Motors plants. The contract prohibits a worker from doing more than one or two jobs. In most plants, workers fall into one of more than 100 job classifications and are only allowed to do the job in their job category.

At Saturn, there are no more than five job classifications. Production employees could work a variety of jobs in teams. The goal is to lessen boredom and increase the quality of work.

In return, workers gain seats on management committees that plan work schedules, assign tasks and employment levels as well as the number of cars to build, how to build them and how to sell them. A union worker, for example, will sit on the board of the committee which selects the advertising agency to handle Saturn's \$20m a year account, a move unprecedented in the US motor industry.

The contract also attempts to break down the differentiations between management and labour. Like managers, workers do not punch a time clock. Management and labour share cafeteria and parking lots. Workers have more say in the operation of the Saturn plant than workers at other General Motors plants have.

Slow, problematic start-ups at some General Motors' newest, high-tech plants, including the Detroit-Hamtramck plant in Detroit and the Buick City complex in Flint, Michigan, have made the auto company re-evaluate how it implements new technology and how it trains workers to use the new technology.

Instead of trying to start every high-tech element of a new assembly plant, including Saturn, at once, high-tech equipment will be phased in gradually. Also, high-tech equipment is being tried out at other General Motors plants before being installed at Saturn.

Little has been revealed about what high-technology items will be installed at Saturn, but it is known that it will use the lost-foam process of casting. The technique involves a plastic-foam shape of a desired object that is surrounded by packed sand. As molten metal is poured into the foam shape, it causes the foam to vaporise, and the metal assumes the foam's shape.

Lost foam has not been used previously in making engines, although car-makers have been studying it for some time. At Saturn, the same methods will be used in making aluminium engine castings. Traditional die casting will be used in making aluminium transmission housings.

The lost-foam process has been labelled the highest risk part of Saturn, yet a key to its success for quality, cost and reliability.

To build a low-priced compact car, Saturn executives argue, as little metal as possible must be used and as little machining as possible done to keep costs down. Saturn has also established new relationships with its suppliers, as possible to simplify deliveries made to the plant and to carry no inventory of parts.

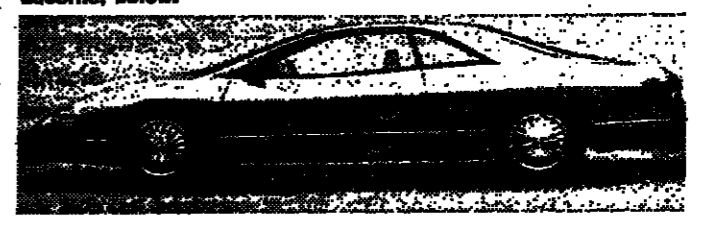
At traditional automobile plants, suppliers are notified that a car-maker needs a given part and bids to do the job are solicited from the suppliers. Generally, the supplier with the lowest price is awarded the contract of a short duration.

At Saturn, suppliers have begun working with the car company before they have been awarded the contract. They have helped in the design and planning stages for the vehicle.

Teams of Saturn employees



Out of Saturn's orbit: two concept cars from other General Motors divisions - the Pontiac Banshee, above, and the Buick Lucerne, below.



working on a given system of the car then award contract covering the life of the Saturn car. The contracts are awarded based not only on price but on quality and the technology provided by the supplier.

For example, Arisco Inc, a US steel company, was recently selected as the sole supplier of steel to Saturn. The company, which has one of the largest research organisations in the steel industry and is a leader in coated steels, had worked on the Saturn project since early 1985, three years before it officially won the contract.

Saturn intends to keep no inventory on its plant floor by employing the Japanese-style just-in-time delivery systems beyond levels now used by most other US car-makers. About 150

major suppliers will operate within a 250-mile radius of Spring Hill, Tennessee, providing parts to the Saturn plant on a just-in-time basis.

Saturn also is attempting to forge all-new relationships with its dealers - relationships that are often adversarial between a traditional automobile manufacturer and its dealer body.

The Saturn team studied various kinds of alternative distribution methods for its cars including mail-order catalogues, fast food restaurants and department stores such as Sears & Roebuck and K Mart Corporation. However, the team concluded the traditional system of using franchise automobile dealers remained the best distribution method with some changes.

A group of 15 existing General Motors dealers helped put together the plan for how the dealer network will work. They decided that Saturn and its dealers needed to create a new kind of partnership. Dealers, they concluded, have to be involved in the selection of other dealers and in all key decisions affecting them.

Thus, three dealers will serve on the Saturn Customer Action Council, a high-level policy team that will undertake strategic business-planning with customer satisfaction as its primary focus.

Six dealers will serve with six Saturn representatives on the franchise-development team, which has authority to make decisions on proposed changes in the franchise agreement. Disputes between a dealer and Saturn will be settled through a mediation and arbitration process, which includes dealers, rather than resorting to the court system.

Saturn will select a limited number of dealers for each geographic territory. Those dealers will be allowed to have multiple locations, including sites in shopping centres and office complexes. There will be no set formula covering all dealers. Each dealer will develop a marketing approach tailored to the assigned geographic region.

Saturn has received nearly 2,000 applications for the Saturn franchise, which will cost a dealer an initial investment of \$2m to \$3m and will increase as locations are added. Saturn is sifting through the applications and will begin to appoint dealers, first in Southern California and then in New York, early this summer.

Dealers will be selected, based on their commitment to customer satisfaction. About 75 per cent are expected to be existing General Motors dealers.

By the time the Saturn car debuts in 1990, about 100 dealers in 30 major markets will have been appointed. Initial markets will be primarily on the East and West Coasts, where sales of imported cars are strongest, major cities in between.

As production at the Tennessee plant increases, more dealers will be added. By the end of the first six months of full production at the plant, Saturn plans to have 200 dealers with 300 to 400 locations on board. Ultimately, Saturn expects to have 250 to 350 dealers.

Saturn also has established a permanent 5,000-member consumer panel to guide product development and marketing effort. The 5,000 includes people who fit Saturn's target-buyer profile or are consumers who are more likely to purchase an import rather than domestic car.

The question remains of whether the Saturn experiment will work. Even General Motors Chairman, Roger B Smith, a champion for Saturn, is not willing to give a definite "yes". Mr Smith and other executives have said Saturn will be a failure if the ideas, particularly those regarding relationships with workers, suppliers and dealers, are not implemented throughout the corporation.

General Motors did announce in late 1986 that Saturn would be phased in. The first phase of the plant would produce between 200,000 and 250,000 cars a year instead of the 500,000 originally planned. Only 3,000 workers would be employed rather than the 5,000 originally planned. The \$3.5bn capital spending plan would be stretched out over a longer, yet unspecified time-scale.

Already, the type of car Saturn will be has changed since the corporation was established in 1985 and a prototype rolled out for the Press to see. Instead of being a low-priced, small car, the Saturn models are likely to be more expensive and slightly larger than originally conceived.

And, ultimately, the question remains, will the car sell? General Motors executives have said Saturn will be a success only if 80 per cent of its sales new business to General Motors. Yet, some observers inside and outside of General Motors claim that the more upscale Saturn car will overlap with existing General Motors' cars sold through the Chevrolet and Pontiac divisions.

Michelle Krebs

CAR OF THE FUTURE 5

What kind of engine is the car of the next century likely to have?

The balance between power and economy

THE TASK of the engine designer who must provide "the power plant" for the car of the next century has been made increasingly difficult by a conflict of interests.

It is not simply that the consumer demands more power for increased performance, but that concern for finite fossil fuel supply dictates improved economy, and that worries about the environment call for ever cleaner exhaust emissions. The balance between these three major factors, plus a number of more minor ones such as the need to reduce noise, both inside and outside the car, keeps shifting.

At the moment, the main concern is for more power. The consumer has forgotten the traumas of 1974 and 1979, and in the opinion of some industry leaders, has forgotten much too quickly. Today's cars are more economical than those of 10 years ago, but the trend has slowed almost

to a standstill - and the improvement which has been achieved is due only partly to increased engine efficiency, the rest having come from other design factors such as better aerodynamics.

Designers are still under pressure to reduce exhaust emissions, but, for the most part, the technology is available to meet proposed emission limits. The engineers wish mainly that political squabbling over the setting of limits would give way to agreement on firm targets to which they can work with long-term confidence.

So what is the designer of the future engine striving after? It depends where he thinks the balance will be in 10 or 15 years' time. A third great energy crisis will certainly shift attention away from the search for more power and back to economy. The prudent industrial planner needs to allow for the possibility: Volk-

wagen's chairman, for instance, says that engine production lines could be switched from petrol to diesel output in a matter of weeks.

For the time being, however, most people are happier extrapolating present trends. The last few years have seen a rapid increase in the number of engines with four valves per cylinder instead of two, with turbochargers or other forms of supercharging, with much more efficient electronic control of fuel injection and ignition.

These trends are likely to continue, however the balance of requirements may shift. For the moment, they are all being used to improve power output while keeping exhaust emissions in check and fuel economy at a reasonable level. Yet all of them might play their part in improving economy while keeping power at a reasonable level.

It may be obvious that electronic control systems can be recalibrated to favour fuel economy rather than power output, but the case for four-valve engines and supercharging is less apparent. In fact, the use of four valves per cylinder makes an engine fundamentally more efficient by making it easier to pump air through itself, reducing the "pumping losses" which sap some of the power output.

Already, some car manufacturers - and most of all the Japa-

nese - are using four-valve engines in cars aimed at the family motorist as much as the sportsman. Supercharging, whether by turbocharger or other means, may seem to be aimed exclusively at increased performance but this is not necessarily

the case.

When turbocharging first became fashionable it was often pointed out, and rightly, that the system recovered energy which was otherwise wasted down the exhaust pipe. The fact that turbocharging has mainly been used to

boost the performance of already fast cars, with little evident benefit to fuel economy, does not detract from the energy-saving potential of the system.

Turbocharging does, however, pose other engineering problems and, as a result, there has been a renewed interest in mechanical supercharging. One of the most interesting developments is Volkswagen's "G-Lader," a light and simple yet effective device which works on the basis of squeezing air through the passage between two small-shell shaped walls (hence the name) moving relative to each other.

Volkswagen believes the G-Lader has great potential to shift the current imbalance between power output and torque, or pulling power. An engineer will explain that power versus aerodynamic drag determines maximum speed, while torque versus weight determines acceleration.

Sadly, any attempt to increase the torque of an engine by conventional means also increases the peak power and results in a quite needless further improvement in the maximum speed of the car to which it is fitted: all the 1.6-litre family cars in current European production will exceed 100mph with ease.

The G-Lader may provide the means to boost engine torque at moderate speeds without adding more high-speed power - and

other systems may appear with the same object. Yet other engineers are delving more deeply into the fundamental working of the engine itself.

There are great potential advantages, for instance, in being able to vary the timing of valve opening which in current engines is a fixed compromise between the needs of different working situations.

It would also help if one could vary the compression ratio of an engine, increasing it whenever the opportunity permitted so as to improve the basic thermodynamic efficiency. Both of these techniques would call for still more sophisticated electronic control systems as well as mechanical ingenuity, but they are being seriously studied.

What kind of engine is the car of the next century likely to have? Although the Wankel rotary engine lingers on and experiments continue with gas

turbine power units, most engineers agree the conventional reciprocating piston engine will continue to hold sway.

A typical family-car engine, two or three design generations hence, will use a variety of advanced techniques to achieve high output (and a very different balance between power and torque) from a unit of small size and light weight.

It will almost certainly have four valves per cylinder; it may well have some kind of supercharging. It will definitely be equipped with an electronic control system of great sophistication, checking and governing operation cylinder by cylinder.

As a further challenge to the designer, it will require virtually no maintenance beyond a change of oil and sparking plugs at infrequent intervals.

Jeffrey Daniels

Electric cars

Potential limited

MANY YEARS ago, a General Motors engineering chief remarked that the practical electric car was 10 years away - as it had been for the last 50 years.

Recent developments have largely justified such scepticism. The purely electric car will always be limited in its range and overall efficiency by the need to carry with it a huge weight of battery if it is to have a practical cruising range. This is despite improvements in battery technology and especially the experimental adoption of new electrolyte combinations such as sodium and sulphur which give a much higher "energy density".

Specialised electric vehicles using the new batteries are likely to find an increasing market in such areas as urban delivery - an extension of the milk float principle (Britain's milk floats form the world's largest fleet by far of road-going electric vehicles).

Motor industry engineers remain highly sceptical about the prospects for an electric car, however. If the need for quiet, non-polluting transport in urban areas becomes more pressing, one likely solution is the "hybrid

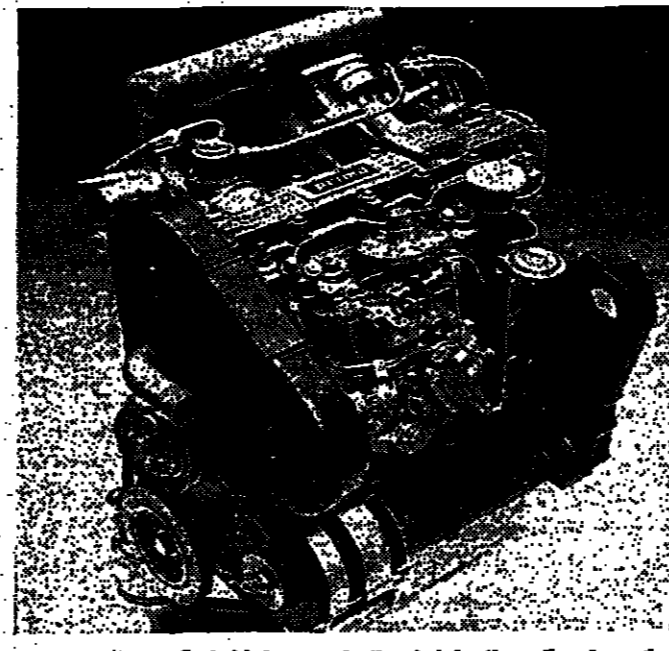
car". This would be an electric car but with a smaller and lighter battery bank, its capacity sufficient for a few miles of driving only, but with a generator driven by a small internal combustion engine. The engine could be run in less environmentally sensitive areas to top-up the battery.

Several hybrid prototypes have been demonstrated, but much work remains to be done to render the idea completely practical. Almost inevitably, one avenue of research leads towards more capable electronic control systems.

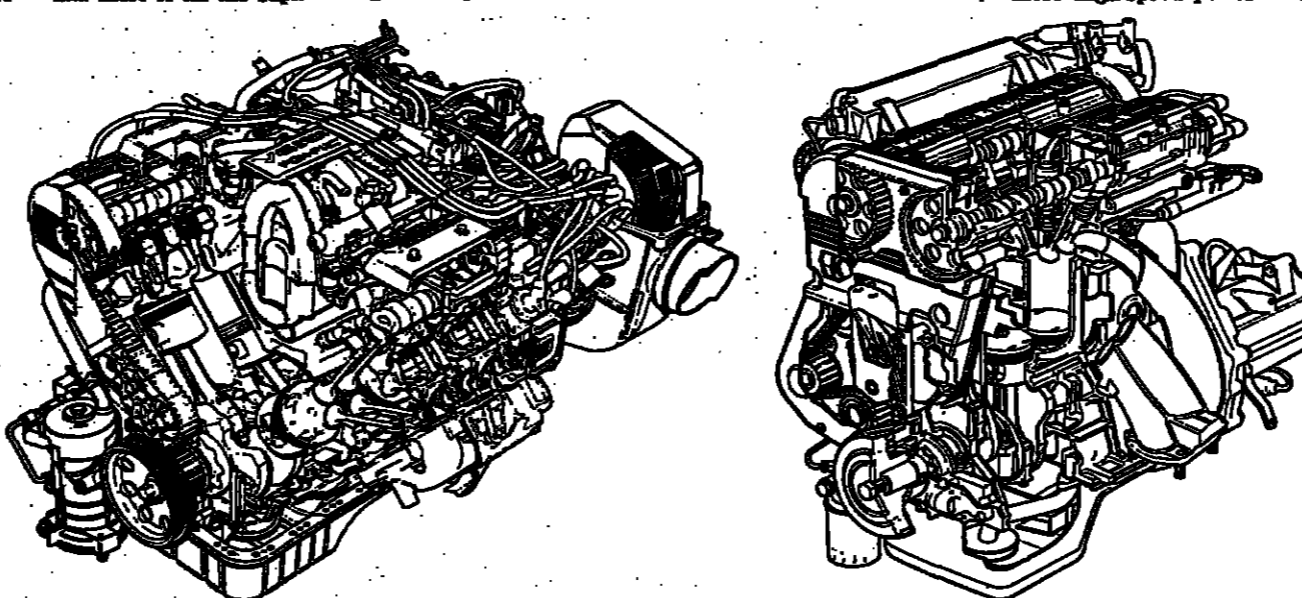
Other engineers argue that the overall energy efficiency in the next century will be best served by using electric power to make some form of liquid fuel for vehicles.

Fears about the "greenhouse effect" of accumulated carbon dioxide in the atmosphere have encouraged work on fuels with reduced or zero carbon content, such as alcohols or pure hydrogen. On balance, it seems much more likely that in 50 years' time, cars will have engines burning such fuels rather than electric propulsion.

Jeffrey Daniels



Prima 55: the first high speed direct injection diesel engine designed for passenger cars (see right)



Variations on a theme: the Honda V6 (left) and M116 multiple valve engines fitted to the Rover 800/Honda Legend

Diesel engines

Important option

THE TWO great energy crises of 1974 and 1979 brought the diesel engine to new prominence and sales soared. Most car companies thought it worth while to add diesel models to their range and some of the new designs were a great improvement.

Performance was improved, noise was reduced and fuel economy maintained at remarkable levels by petrol engine standards. But more recently, the diesel has suffered something of an eclipse. Fears about the content of diesel exhaust emissions, and uncertainty about the standards which might be introduced to control these, have cast a cloud over sales.

The European consumer's increased interest in performance, and reduced concern for fuel economy as oil prices fell and then stabilised, has also had its effect.

Even so, the diesel remains an important option especially if there should be a further energy crisis, and specialist design teams are still looking for fundamental car diesel improvements. Of these the most important is probably direct fuel injection which promises much better overall efficiency through reducing the "pumping losses" which occur with the indirect injection

used in almost all current small, high-speed diesels.

The direct injection (DI) diesel poses severe engineering problems with the threat of high peak stresses and noise levels, and the need for very high fuel injection pressures.

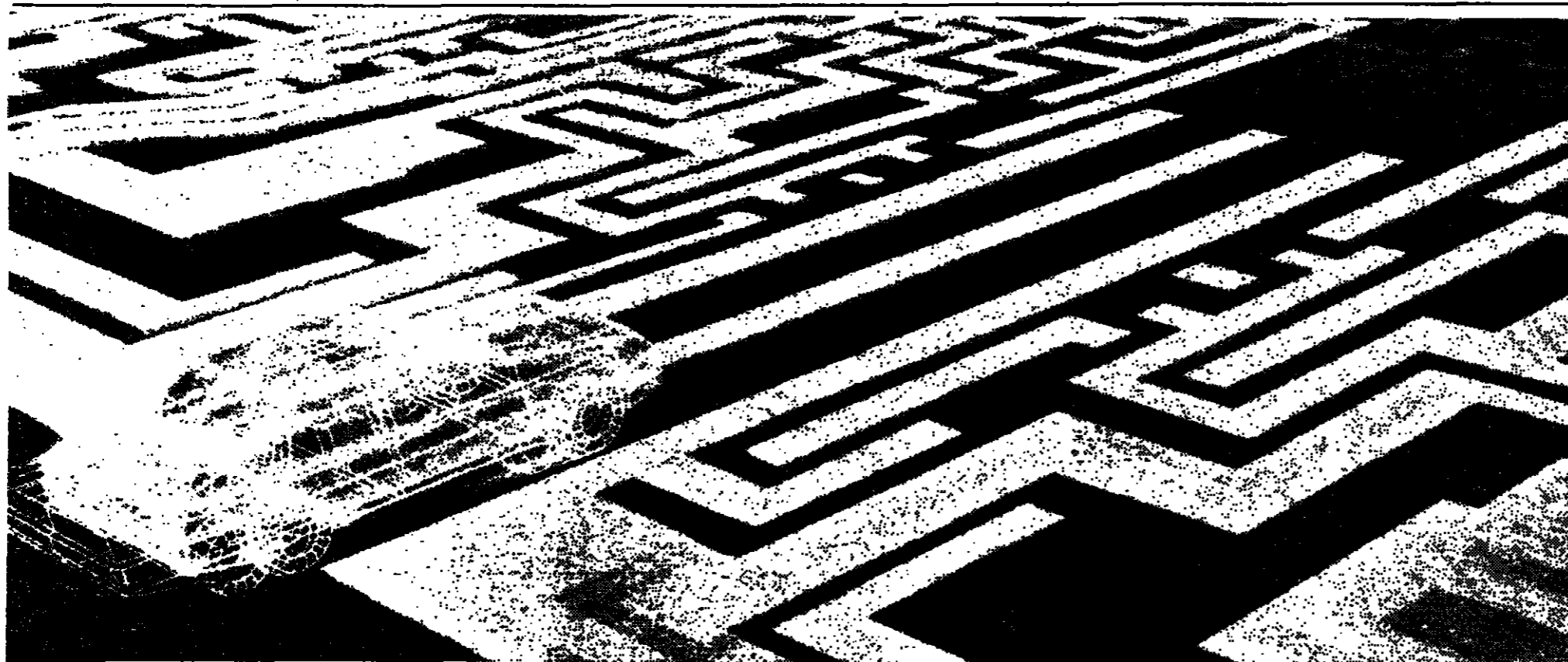
Perkins, working with Rover, has won the race to produce a DI diesel suitable for car use, though at the moment this unit, the Prima, is fitted only to the Maestro van.

Work continues especially on more sophisticated engine mounting systems to quieten the installation. The Austrian Steyr-Daimler-Puch company has also demonstrated an acceptable and ingenious DI diesel engine in cars as diverse as a Jaguar XJ6 and a Mercedes G-Wagen.

Thus far, the electronic revolution has hardly reached the diesel but that is likely to change before long with the adoption of electronic controls for injection pumps, for more flexible and precise control of injection timing.

Other measures now being proposed for use in petrol engines (and especially, perhaps, variable compression ratio) may also be applied to the diesel.

Jeffrey Daniels



New directions for the car.

Just what direction the development of the car would take was becoming clear at the beginning of the sixties.

Because it was obvious even then that electronics held the key to making the automobile a cleaner, safer and more economical form of transportation.

However, it was only after Bosch had succeeded in developing microchips that could withstand heat, cold, dust and shocks that it became possible to put various ideas into practice.

And still, nobody can be quite sure just how many of our latest ideas will become everyday applica-

tions in the future. For example, new electronically controlled motors (EC Motors) are smaller, lighter and quieter than their predecessors. These motors are applied in the heating, ventilation and air conditioning, help cool the engine, drive power windows, fuel pumps and control systems. Bosch EC motors will contribute to increased safety and comfort in the car of the future bringing luxury car features to a wider market.

Blaupunkt, a Bosch subsidiary, has developed a system that uses a computer with a voice synthesizer. This actually tells the driver

where he is and where he's going. In fact, this Electronic Traffic Pilot system, EVA has already undergone its first large-scale test.

Another system, called Travel Pilot, acts as a navigational aid to drivers, pinpointing the route to their destination, right down to street names, on a visual display.

Bosch electronics can also help the environment. Our Lambda sensor, for instance, has made it possible to cut exhaust pollution by up to 90% using gasoline injection and a 3-way catalytic converter.

Other Bosch electronic systems are increasing engine performance and reducing fuel consumption. For example, the Jetronic and Motronic electronic injection and control systems. The latter controls fuel injection and igni-

tion timing simultaneously. While another control system makes diesel engines cleaner.

Bosch electronics can make driving safer, too. Take the air bag which inflates within 30 milliseconds between driver and steering wheel in the event of a collision. Then there is the seat belt tensioner. This tightens the belt upon impact during a crash.

Bosch developed the electronic triggering units for both of these safety systems.

Of course, the best safety systems are those that prevent accidents. Such as the Bosch ABS (Anti-lock Braking System) which prevents the wheels from locking when the brakes are applied. This combined with the ASR (Traction Control) prevents wheel spin. We're also developing in-car radar which applies the brakes automatically in the event of danger.

For the future, one thing is certain.

The car will change most through electronics. An area in which Bosch is at the forefront.



BOSCH

CAR OF THE FUTURE 6

Engineers are studying more seriously the automatic operation of a manual gearbox

Why CVT may not be the answer

A GOOD DEAL of excitement was generated in 1987 by the appearance of three small cars - two European, the Ford Fiesta and the Fiat Uno, and one Japanese, the Subaru Justy - with continuously variable transmission (CVT).

The principle of CVT is that, instead of a gearbox providing a set of discrete drive ratios, the ratio is infinitely variable between its upper and lower limits. In current systems, this is achieved by running a specially shaped drive belt between two pulleys whose effective diameters can be varied by squeezing the sheaves together or easing them apart.

The advantage of CVT is that it should provide the ideal drive ratio for any situation, allowing the engine to be run at the most efficient combination of speed and load. It should also make driving more pleasant by eliminating the jerks of gear-changing, manual or automatic, leaving only a smooth progress as the ratio changes by degrees.

This being so, is CVT likely to sweep the world of car transmissions before it? Many engineers still think not. While the principle itself is admirable, there are snags too. In order to make a practicable CVT system, allowance has to be made for starting from rest - the present CVT cars use an automatic clutch - and also for providing a reverse gear, a further complication.

More fundamentally, CVTs appear to suffer inherently greater internal power losses than geared transmissions (a CVT may be less than 90 per cent efficient, a geared system 96 per cent or even better) and this cancels out some, perhaps most, of the theoretical gain achieved by running the engine efficiently.

It appears also to be true, on current evidence, that the CVT has trouble in coping with the torque output of anything but a

very small engine: both Fiat and Ford fit their systems only to the gentle 1.1-litre versions of their superminis.

If the CVT fails entirely to fulfil its promise, then what are the transmission alternatives for the future car designer?

In the first place, we should remember how far transmissions have come in the last 20 years. In the 1960s, the three-speed manual gearbox effectively gave way to the four-speed; in the 1980s, the four-speed has given way to the five-speed, and some of the most expensive sporting cars are now beginning to appear with six speeds.

At the same time the three-speed automatic transmission is largely being supplanted by the four-speed. There are two reasons for this proliferation of ratios.

Most fundamentally, the more gear ratios there are, the more nearly a conventional "stepped" gear transmission can approach the CVT ideal of keeping the engine working as efficiently as possible.

Second, the higher performance of most cars, and especially the higher maximum speeds made possible by improved aerodynamic body shapes, has meant that the gap between a first gear low enough to give easy hill-starting, and a top gear high enough to avoid engine over-revving, has become too wide to be bridged by only two ratios.

Volkswagen's former Head of Research, Professor Sieffert, held the opinion that, if a car's drag coefficient were to be reduced to 0.25 (from the best current values of 0.29 or so), then a six-speed gearbox would become essential.

The trouble with a six-speed gearbox is that only the most enthusiastic drivers are likely to welcome the idea. Some motor industry market researchers say they have already detected resis-

High technology components

THE projected market shares for high technology car components, according to Volkswagen forecasts, include the following:

- Single engine control likely to rise from 30% to 70% in countries with strict emission legislation.
- Electronic diesel control likely to rise to 25% in larger cars.
- Super-charging: in West Germany, for example, 20% will use mechanical or turbo-charging.
- Anti-lock brakes could well rise to 33% in Europe.
- "Active" suspension systems: likely to win increasing market shares.

tance to five-speed gearboxes, whatever their advantages. Therefore, if the number of gear ratios is to be increased, some form of automatic shifting becomes increasingly likely.

In Europe, unlike America, the conventional automatic transmission has never become the norm, although its market share continues to creep up, especially in north European markets. Now, however, engineers are studying more seriously the idea of achieving automatic operation of an essentially conventional manual gearbox, which might potentially be done at much lower cost.

Today's automatics use epicyclic gear trains, fluid torque converters and other specialised high-cost components. The idea of a gear-change system which would imitate the movements of a skilled driver first appeared over 50 years ago and predates the automatic transmission as we know it today.

At that time, several earnest projects proved the idea to be a non-starter - but today's engineers have electronics at their disposal, and far more sophis-



Borg-Warner Automotive's durable high-tech chain, which is used in CVT systems

icated sensors and servo controls than the pioneers could have dreamed about.

There are current projects along these lines within the development departments of several major car manufacturers.

There is of course no objection to increasing the number of speeds within a conventional automatic transmission. Having already almost universally gone from three to four speeds and added a number of new features, such as "lock-up", to prevent torque converter slip losses in the higher gears, and driver selected shift patterns (theZF transmission in the latest BMW models can be asked for "sport" or "economy" gear selection), automatic designers are now looking towards five speeds.

One of Toyota's most senior engineers has said that such a transmission, with electronic control of course, could match or exceed the performance and economy achieved by a skilled driver with a manual five-speed gearbox.

In a sense, the world of transmissions is becoming wider. Where 20 years ago the bulk of interest and attention was devoted to the clutch and gearbox, the spread of four-wheel drive and other systems has added variety and interest - and

new engineering challenges. Four-wheel drive is heavy and expensive and likely to remain so, yet interest in it continues to increase to the extent where European 4WD car sales in 1987 were nearly 18 per cent up on those of 1986.

For very powerful cars, 4WD has the advantage that it reduces the risk of wheelspin and control problems - but it has a lighter, cheaper rival in the form of "traction control systems" which sense when wheelspin is just starting, and cut back the engine power to stop it getting out of hand.

In essence, such systems work like anti-lock braking in reverse, and in fact they can share many of the same components, especially the wheel-mounted speed sensors, to reduce cost.

Although small teams continue research into other forms of transmission, such as electric or hydrostatic drive, it seems certain that the beginning of the next century will see cars still equipped with gearboxes and drivelines of types already familiar. But a far higher proportion are likely to have some form of electronically controlled automatic gear shifting, and more drive ratios to make the most of the engine output available at all times.

Jeffrey Daniels

Automotive glass

Super-bubbles ahead

UNTIL relatively few years ago, glass in vehicles was perceived mainly as a medium to see through and provide protection from the elements.

Now, however, the material is shaping up as one of the key elements that will make possible much more radical approaches to the way in which cars of the future will be designed and produced.

Some of the current trends and possible future developments are mapped out by Dr Ronald Skeddle, chief executive of Libby-Owens-Ford, a member of the UK-owned Pilkington glass group.

Dr Skeddle sees them leading to the day when "cars and trucks will feature glass bubble designs in which entire passenger compartments will be surrounded by glass, bonded to strong, lightweight plastic bodies."

If and when they appear, they will have future made possible mainly by new process technologies.

Currently, the most radical of these is press-bending. In this, windcreens, rear screens and other major glass areas are heated and processed by hydraulic presses and specially constructed dies.

"Careful control of temperature and pressure makes it possible to produce automotive parts which incorporate decidedly radical shapes, and even right angles," says Dr Skeddle.

The process represents a substantial advance on the currently conventional technique of gravity bending to achieve some of the double curvature shapes currently required by car, and to a lesser extent, truck producers. As its name implies, this process involves allowing gravity to shape the glass over a mould located within a furnace.

It is when press bending is

allied to another process, encapsulation, that the full possibilities for glass usage can be expected to emerge.

This entails surrounding the glass component with a moulded protective rim in which can be incorporated fixing points to the rest of a vehicle, windscreen wiper mounts or other features.

"The result," says Dr Skeddle, "is a complete, ready-to-install modular component which can help improve vehicle aerodynamics, appearance and assembly-line efficiency, particularly where robotics and other highly automated systems are in use."

Pilkington itself is already using two encapsulation processes: reaction injection moulding (RIM) and polyvinyl chloride (PVC) moulding. The advantages

In Japan, sensors can turn on wipers when moisture is detected

of the former include its ability to accommodate complex shapes and large components. PVC moulding is less flexible in its application because, unlike RIM, it requires heat and pressure. However, it is a cheaper process, and well suited to smaller, simple shapes. Both processes have themselves been automated by Pilkington's plants in Michigan in the US and in Ontario, Canada.

All the above take the automotive glass of the near future a very long way from its origins, not least in terms of value-added for its manufacturers.

As Dr Skeddle points out, it provides a classic example of how research and development by a supplier itself can create new, high value-added markets for what might seem at first sight to be a simple, straightforward product.

soon be speeded up sharply. Pilkington's LOF research centre at Toledo, Ohio, has developed car windcreens similar to those used in military aircraft, and which are capable of clearing 2.5mm of frost or ice in less than three minutes in a temperature of -18 degrees C.

Crucially, they are heated not through a matrix of thin wires but a microthin metallic coating - invisible to the naked eye - which is an integral part of the windscreen.

Meanwhile, Japanese car makers are already bringing into production vehicles with rain sensors which automatically turn on the wipers when moisture is detected.

Development is under way of automotive glass which will both bounce back some of the solar energy which heats up to uncomfortable levels the interiors of vehicles left in the sun, and block out that part of the solar spectrum which causes materials to fade. Not least, by the early 1990s jet fighter-style "head-up" instrumentation should be available, in which data is projected directly in front of the windscreen using holography.

Apart from its safety aspects, the "hud" display has important implications for vehicle designers, in that much existing dashboard display area will become redundant and thus available for other uses.

All the above take the automotive glass of the near future a very long way from its origins, not least in terms of value-added for its manufacturers.

John Griffiths

John Griffiths describes Fiat's use of robots

A plant of the future

FIAT HAS spent \$1.7bn to bring into production the Tipo hatchback, unveiled in January, which it hopes will help it to secure the European new-car market leadership this year.

Much of the money has been spent on the manufacturing facilities for the car, which is being built at Fiat's Cassino plant.

It was there, and at its sister plant at Rivalta, in 1978, that Fiat made a major contribution to the launch of the European car industry's robotics revolution with the "Robogate" body welding system for its Ritmo/Strada.

Ten years on, Robogate is also being used for the Tipo, but in a plant that is otherwise unrecognisable. And it seems difficult to refute the claim of Fiat Auto's managing director, Mr Vittorio Ghidella, that Cassino has once again become Europe's, and possibly the world's, most advanced plant in commercial production - virtually a factory of the future, operating in the present.

The design and engineering of the car - which includes the concept of "zero defects" - has been integrated not just with its intended production facilities, but with those that check the quality automatically at the end of the production line as well.

In setting out the design parameters for the car, says Mr Ghidella, it was decreed that production should be as automated as possible. It would mean assembling 14 component "modules", each to be pre-assembled separately away from the produc-

tion line (see illustration). Each module was also to be pre-tested, "so that each could be perfect", according to Mr Ghidella.

Although Fiat says there have been no net job losses, few of the plant's total complement of 5,000 work on the production line any more, having been retrained into plant maintenance, servicing the automated systems and similar tasks.

"They have been taken away from the nasty parts of assembly," according to Mr Ghidella - and not least from one of the traditionally most cramped and uncomfortable assembly jobs of all, installing the dashboard and control pedals.

Fiat has taken the view, shared by most other western volume producers, that low Japanese car production costs have more to do with disciplined work forces and work practices than automation; and that, since most western workers would not tolerate such regimes - a response of which Mr Ghidella is not particularly critical - then European car companies have no option but to make maximum use of automation.

There is much innovation - for example, the first use for mass production of laser welding of sheet metal. It is used in the structure making up Tipo's engine compartment, and, as a continuous weld, it actually strengthens the structure, unlike spot welds.

But what distinguishes Cassino is not the introduction of new types of automation so much as the sheer volume of automation, and its integration into a "start-to-finish" production system, which Fiat places most emphasis on.

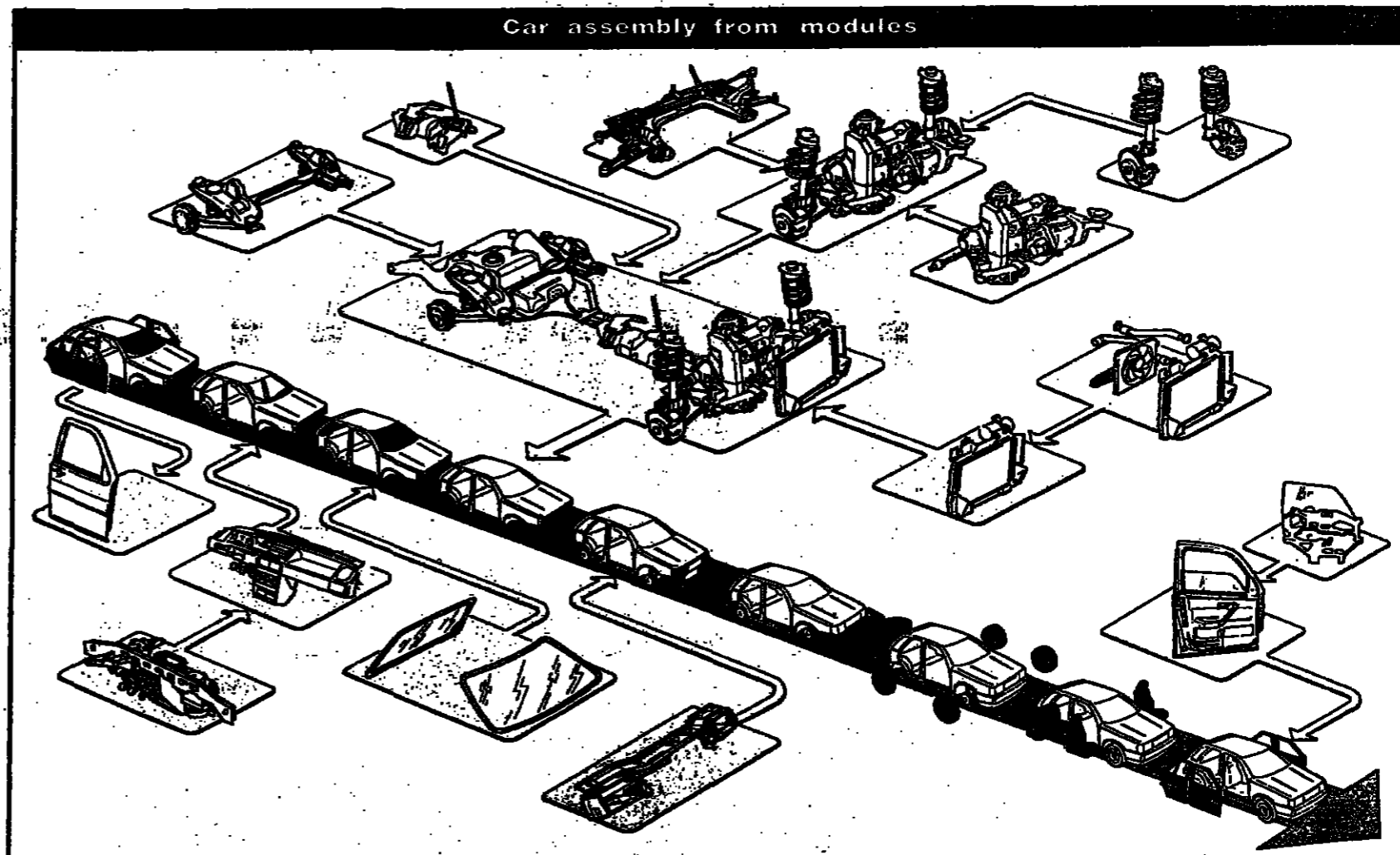
Just as examples: process control is automated; so is subframe assembly, engines from the Termoli engine plant then being mated to it, together with suspension, steering rack, struts and wheel-hubs - all without human intervention. The robotically-assembled bodyshell is mated automatically to the complete driveline and subframes.

Other "seeing" robots install windcreens, position and bolt on wheels, install seats and even fill the petrol tank as it comes off the production line for simulated road-testing and systems checks - which is also carried out by robots.

Painting and dimensional checks are automated, while even special screws with their own in-built washers have been developed for a robot population, which in turn has been developed and produced mainly by Fiat's own Coman subsidiary.

Altogether, there are 403 robots, which weld, manipulate, fasten, paint, apply primer and test. They are overseen by 49 video control systems.

Fiat emphasises its belief that the Cassino plant is the first step towards complete automation. The investment will pay off in other ways, however. As the



group points out: the versatility of the machinery is such that it will be able to produce Fiat's own cars of the future with very little modification.

That applies even if there are significant changes to the materials used in the car.

Cassino's Mr Karl Ludvigsen, a former Ford of Europe vice

president, who has been carrying out an extensive research programme for the EC Commission on strategic issues affecting the European motor industry, sug-

gests that the likelihood of this is increasing, with aluminium possibly emerging as a challenger to steel for the production of body platforms.

Automated production means assembling 14 component modules, each of which has been pre-assembled separately away from the production line

Innovation

Drivers' cautious view of technology

MR AVERAGE Motorist has already demonstrated, to several manufacturers' cost, that he is not prepared to accept wide-eyed wonder every innovation dreamed up for the car. Witness the speed with which drivers in the mid-1980s told voice-computers to shut up.

Indeed, one of the fundamental challenges to car-makers, identified by General Motors chairman Roger Smith, when launching GM into its aerospace and electronics company acquisitions, was how they were to make the right choices among the welter of new technology that would become available before the end of the century.

Developing the technology itself, he suggested, was almost the least of the problems.

Just what the motorist expects of new technology, and how it may still have an impact on drivers in unexpected ways, has been the subject of considerable research over the past 18 months by the UK motoring organisation, the Royal Automobile Club.

In the process of reaching a number of conclusions, it has drawn also on input from its US counterpart, the American Automobile Association, and similar organisations in other countries.

The incentive for a thorough study of the subject by such organisations is fairly obvious. Most of their revenue comes from subscriptions, the main purpose of which is for the RAC, Automobile Association and other national equivalents like West

Germany's ADAC and the AAA, to provide rescue in the event of breakdown.

Whether it will still be possible to effect roadside repairs to a high-tech car of the future - for example, by swapping electronic control modules - or whether they will have become so complex that traileering the vehicle for repair is the only solution thus impacts immediately and heavily on both the type and cost of service that such organisations will be required to provide.

Mr Arthur Large, chief executive of RAC Motoring Services and the author of its final report on the subject, points out that, despite all the excitement generated within the motor industry itself about single developments, most motorists still see car developments as evolutionary. Therefore, he observes, "the radical changes in store are likely to come as something of a shock."

But it seems that motorists do not actually fear most new technologies. They view it, with the odd exception, as an inevitable process that will occur regardless of their personal opinions or preferences.

The RAC's research nevertheless has identified five main areas where drivers do perceive benefits: safety, linked to innova-

tions such as anti-skid braking and four-wheel-drive; reliability; lower running costs through factors like longer service intervals; higher performance, from electronic fuel injection, multi-valve engines and so on; and greater fuel economy.

They far outweigh current new technology dislikes, most prominent of which is the voice computer. Even then, most motorists surveyed were prepared to acknowledge that it could be the forerunner for more useful devices, such as route guidance systems which may supply streams of information more effectively, and safely, aurally than visually.

Where the research did reveal user-worries about systems, most of which are not yet available, and which would remove some control from the driver.

This applied, however, even to the continuously variable transmission, introduced as an option on Ford Fiesta and Fiat Uno models last year. It works by a system of expandable pulleys providing stepless gearing changes which allow the engine to work all the time in its most efficient speed range.

But the RAC found that many motorists, without ever experiencing it, felt they would lose some

control over the car and possibly its driving enjoyment. It may help to explain why both Ford and Fiat are finding sales of their CVT cars currently falling well below expectations.

Real anxiety was displayed, however, about one likely innovation for the 1990s - active steering. This facility, being developed by Group Lotus and BMW among others, involves

electronics mediating between the steering inputs made by the driver and the amount that the steered wheels actually turn. In other words, if the system concludes that the driver is overcorrecting a skid, for example, it will reduce correction actually made at the wheels.

"The advantage of such a system was appreciated," according to Mr Large, "but many

expressed concern over the idea of the car 'taking over'."

There are other areas where, quite clearly, manufacturers are going to have to watch their step. The great promotions given by extended service intervals by some manufacturers for example, argues Mr Large, are seen as promises unfulfilled when the small print sets out the need for oil and plug change at 6,000 miles.

He predicts some specific effects of new technology which will have an impact not just on the motoring organisations, but on the entire automotive aftermarket, embracing parts, accessories and service. Not least, these include vehicle complexity, ending do-it-yourself maintenance by the average motorist, and tying motorists to their cars' franchised service network because only the franchise dealer can service and repair the car.

From the perspective of its own operations, the RAC acknowledges new technology so far to have been mainly reliable, with most problems occurring with connectors and other peripherals rather than ECUs, or electronic "black boxes". The former, Mr Large suggests, can usually be dealt with by a roadside patrol. But he is concerned about lack of

standardisation of such items between manufacturers, and their reluctance to provide information which might make the RAC's planning for parts suppliers, diagnostic equipment and so on easier.

Longer-term, the research sees some ominous problems looming not just for motorists but manufacturers as well.

Drivers have displayed anxiety about electronic systems over-ruling their control.

An example is provided by the buyer of a luxury car like the Jaguar XJ6 in 1987. The first owner automatically has the car locked after no expense spared, by the franchised network. The second owner, of a car three years old in 1990, is slightly dismayed to find that, unlike Jaguars of old, he, too, must use the franchised network and cut his long-standing ties with his local garage.

At six years old, the third owner could then, for example, have a problem with the anti-lock braking system. The size of the

bill for this complex bit of electronics could actually force him to sell the car.

And that is quite apart from the disaster that would undoubtedly ensue from a third or fourth owner's trying to wire his own stereo system into the Jaguar's multiplex circuits.

Are manufacturers of complex executive cars, therefore, risking much sharper depreciation of their vehicles - and hence lower sales - as the result of used-car buyers, mostly private motorists, being frightened to take them on? Such questions will only be answered fully with the passage of time.

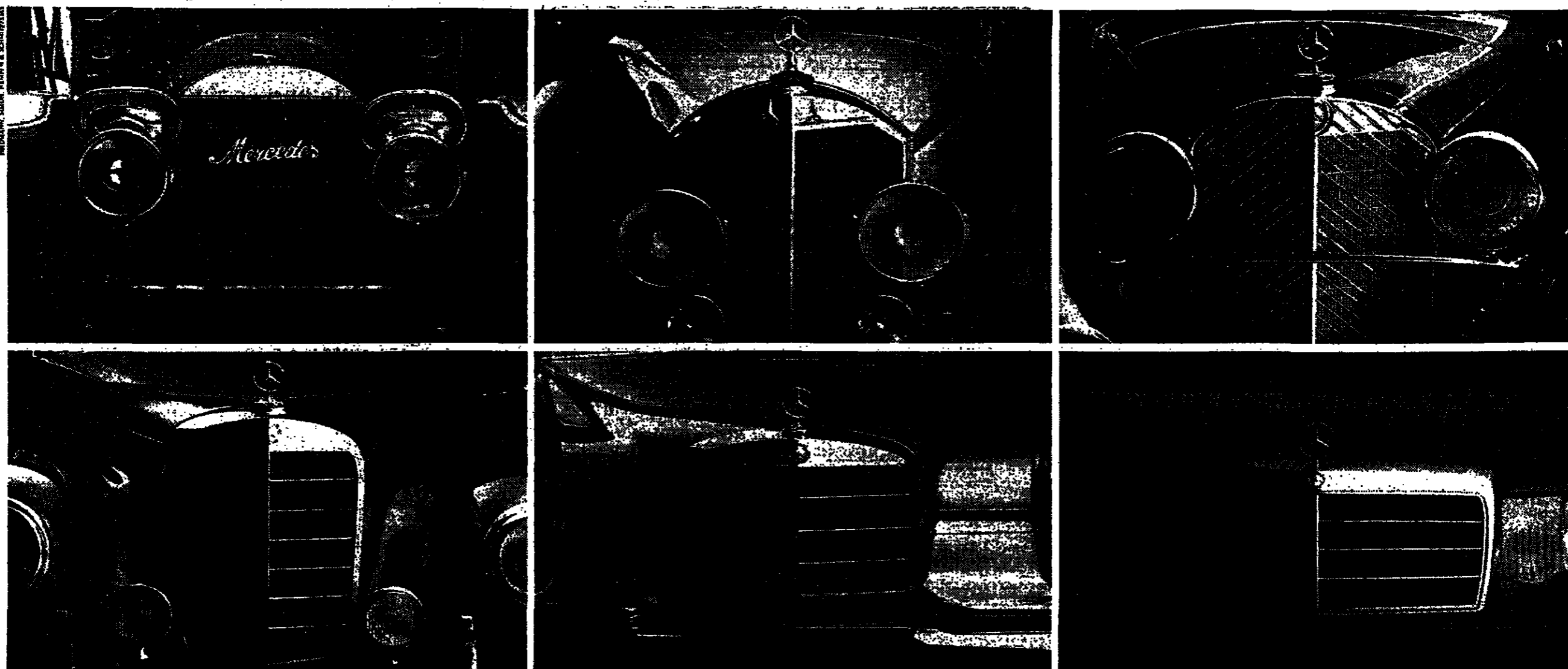
However, the evidence from the RAC's own Recovery Service bears out the expectation of motorists that although breakdowns will be fewer, when they occur they are likely to be more severe than in the past and require the vehicle to be recovered rather than repaired at the roadside.

Between 1980 and 1982 the incidence of recoveries actually declined. But from 1983 they rose sharply to from 10 recoveries per 100 members to 12.7.

However, the RAC says it is countering the trend by investing heavily in training, particularly in electronics, and in the development of diagnostic aids. With these, it believes, it should be able to reverse the current upwards trend in recoveries by the early 1990s.

John Griffiths





When innovation becomes tradition.

Ever since Karl Benz and Gottlieb Daimler built the world's first motorcars, the development of new ideas has been a part of our company's tradition.

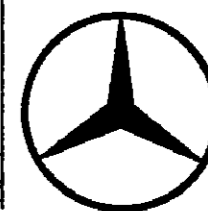
In the future the ability to set progressive standards in both product development and manufacturing technology

will get even more important.

We will ensure the best technical advancement in automotive engineering and the growth of our company by opening up new opportunities in future-oriented fields of activity.

Not size but innovation, high-tech-

nology and high quality are important for the successful development of our company and for strengthening our future competitiveness. So we make sure that in the future good ideas will not become a matter of chance and innovation will remain our tradition.



CAR OF THE FUTURE 8

John Griffiths profiles the March racing car and engineering group

Success for free-wheeling thinkers

"Heaven knows how we do it; maybe it's the slap-happy approach which allows us to be free-wheeling thinkers."

Mr Robin Herd was commenting on the haphazard way in which, despite a UK climate which appears systematically to under-value the education, training and payment of automotive engineers and designers, they still manage to coalesce into small groups in British backwaters from which they proceed seriously to embarrass rivals overseas.

The March racing car and engineering group, which chairman and managing director Herd took to London's Unlisted Securities Market in spring of last year, provides a classic case in point.

Based at Risca, deep in the Oxfordshire countryside, it is far better known in the US and Japan than in the UK, where it is remembered more for its 1970s grand prix racing activities - to which it has just returned - than for anything else.

But in the US, and Detroit's motor community in particular, it is famous for having humbled all comers for five successive years in the Indianapolis 500, North America's most famous motor race. Next month, March hopes to make it six.

More important for its financial welfare, for most of those years March cars have been virtually the only ones on the grid - which at around \$175,000 per rolling chassis, excluding engine

(which March does not make) has provided the company, which currently employs around 200, with a substantial part of its turnover.

In 1986, its last pre-USM financial year, that turnover reached \$11.9m, on which it made pre-tax profits of \$1.6m.

Last month, some in the City were faintly disappointed at a marginal reduction in profits last year to \$1.5m on turnover increased to \$13.5m.

The drop was attributable both to the lower dollar and the fact that a serious competitor for Indy cars sales has now emerged in the form of Lola.

However, the 48-year-old Mr Herd insists, turnover from this aspect of the business is already down to about half the total. March expects its grand prix and Japanese racing activities to be increasingly profitable this year - and should also start to benefit in earnest from the consultancy engineering businesses from which, it is now clear, the group's growth is overwhelmingly expected to come.

Earlier this month, the company announced a formal restructuring, into three separate divisions, to steer this intended growth.

March Racing will make and run the grand prix racing cars under the managing directorship of Herd himself. March Engineering will continue the design and manufacture of Indy and other racing cars for customers under

managing director Charles Towns, and Dr Lachlan Shackleton-Fergus is to head up March Technology, the consultancy group which currently has three subsidiaries engaged in materials - mainly plastic composites; wind-tunnel operating and manufacturing; and specialist vehicle projects for outside customers.

March's involvement with wind tunnels says much about the nature of the company itself. Until not much more than a year ago, Herd's only interest was in acquiring one so that March could better undertake aerodynamic research for itself and on a consultancy basis.

Attempts to order one elicited a two-year delivery quote from West Germany. So March designed, engineered and installed its own in around three months for around \$850,000. It now has orders for half a dozen from around the world, says Herd.

They are of the moving ground type necessary to explore airflow beneath a car - an area much more familiar to grand prix car designers than those of roadgoing cars, and where substantial improvements in aerodynamic

efficiency for roadgoing cars have yet to come.

"We seem to have established that there is not one moving ground tunnel in the US industry," claims Mr Herd.

No-one at March seems to find it out of the ordinary that, once the power of the latest Indy cars began to reach the 1,000bhp mark, the company should feel the need to design and make its own, highly-complex six speed gearbox to handle the power. It completed the project within months and now builds and sells 500 a year to Jaguar and Toyota for their racers, among many others.

Nor does Mr Herd seem particularly excited by his disclosure to the "Financial Times" that he wants to launch March into road-going car production in its own right within the next several years.

The project, he acknowledges, will be given a lower priority than the all-important task of developing the consultancy business.

Nevertheless, he insists, March is fully qualified to build road-going "super-cars" capable of being more than a match for cars like Ferrari's \$140,000 F40 model.

"We can build a far better car using our composite technology for that kind of price and at a rate of 100 or so a year." The engine, he says, will be a detuned grand prix unit.

Commercial confidentiality clauses, as with other consultan-

cies, cover most of March's contract design and engineering work with only the occasional, already-achieved completed contract like the development of GM's Oldsmobile Aerotech prototype car or Panther's Solo II sports car capable of being referred to publicly.

But it is clear that March's 1987 turnover will soon be dwarfed, and not just by organic growth of the consultancy business but by a strategy of acquisitions. The North American consultancy industry, expected to provide \$1bn worth of engineering and other services this year to US vehicle makers, is, Mr Herd admits, an obvious target - but he does not elaborate.

His own views of trends for the car of the future, not surprisingly, focus heavily on the materials from which they are made. He does not suggest that volume-built cars will be produced in anything other than sheet metal, and says that "appropriate technology" for any given purpose, rather than the use of a favoured material, should rule all considerations - "composites are only one way of skinning the cat," he says.

"We can now get composite parts down to the same production tolerances as metal, but with much greater strength. As ever, the difficulty is getting the cost down. We have the Catch 22 situation of needing to get the volume in order to bring costs down, but manufacturers not being willing to commit to it because of the cost."

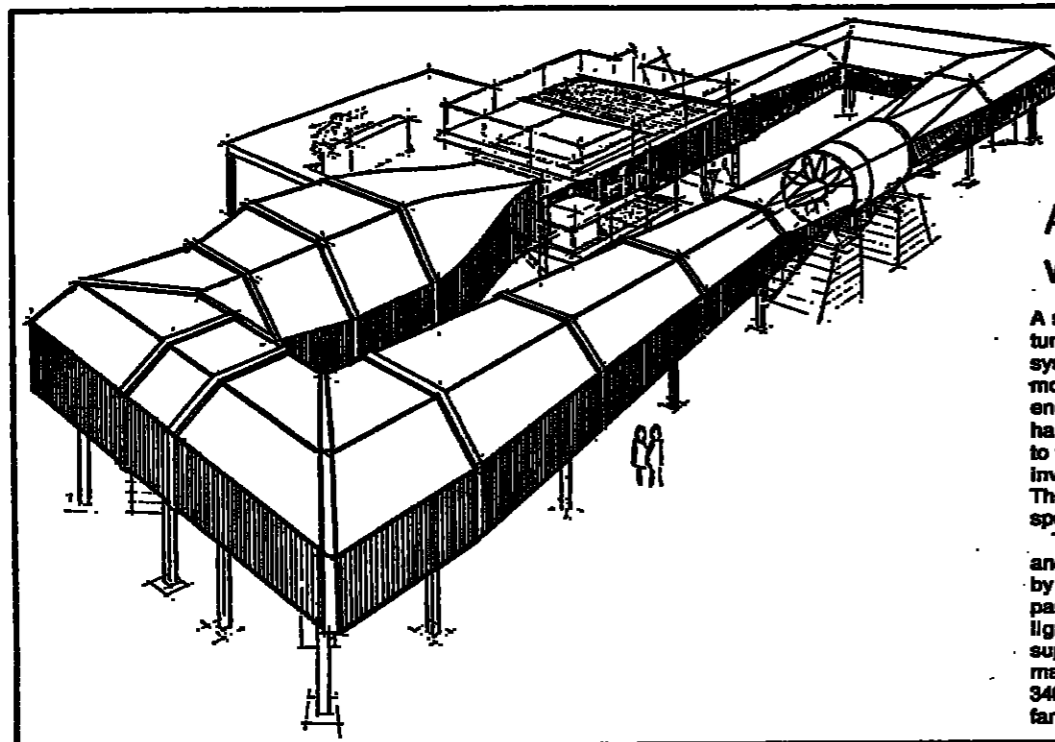
"Nevertheless, I find it hard to believe that in ten years' time anyone doing Jaguar's annual volume or below will be building bodies in anything other than composites because you need no skilled labour and tooling costs are a tiny fraction of those for metal."

Higher production volumes would simply mean doubling up on cheap tooling, he says, to get round the difficulties of curing time. Given such an approach, "I don't know where the production ceiling might lie."

Robin Herd acknowledges that "lots of people have to build racing cars to get it out of their system" before moving on to something else. That implies something more serious but, he insists, "I don't want it ever to stop being fun."

But there is another aspect of motor racing on which he is unequivocal - "it has opened more doors for us, particularly the Indy cars in Detroit, than ever we could have believed. And there can be no better breeding ground for your young designers and engineers."

An example of how UK automotive engineers are winning in overseas markets



An advanced wind tunnel

A sketch of the March wind tunnel. The computerised system is equipped with a moving ground plane, wide enough to accommodate up to half-scale cars and long enough to test two models and investigate interference effects. The maximum air and ground speed is 200 kph.

The tunnel duct, designed and built by Comtec, is formed by large composite honeycomb panels which, being stiff and light, need only simple supporting frames. Comtec also made the blades for the 3400mm-diameter variable-pitch fan system.

Materials and components

Plastics content set to rise substantially

BY THE year 2000, the plastics content of the typical European car may be as much as 30 per cent of its weight. That compares with an average of around 8 per cent now, according to estimates by General Electric, the giant US industrial group.

GE has a more than passing interest in the subject, for it has at least half a dozen companies engaged in supplying the motor industry with services and components, including GE Plastics, which makes high-performance engineering thermoplastics already widely used by vehicle makers.

Not that the crowds flocking around it at the Frankfurt motor show would have been aware of it, but BMW's Z1 roadster, an open two-seater which the West German maker plans shortly to put into production, has strong links with GE Plastics.

GE says the Z1 is the first car in the world to have all its vertical body panels made of injection-moulded engineering thermoplastics.

The front wings, doors, rear quarter panels and other panels are moulded from a GE resin, Xenoxy, which is also used in the production of the front and rear fascias from GE's Lomond thermoplastic elastomer.

What is virtually the entire external cladding of the car has a total weight of 120 lbs - and GE hardly appears to be over-stating the case when it says that there are "major implications for fuel economy and performance, in terms of reduced weight and aerodynamic drag that the new materials make possible."

GE and rivals in this sector like Europe's Du Pont are working closely with vehicle makers on both continents to develop a variety of plastic composites tailored to precise uses.

Such materials have ceased to be confined to non-stressed areas like body panels and are now being used in, for example, car and truck springs. Those developed by GKN for trucks, for example, have better ride characteristics than metal springs at less than half the weight.

But the use of these materials does mean changes in manufacturing, the price paid out for the upheavals being reductions in vehicle development times - "they can be reduced from the present-day cycle of four years or more to two years and less," GE asserts.

The pros and cons of composites, however, remain complex. One very real advantage of their use is low tooling cost. The mould required for body panels,

for example, costs a small fraction of that needed to stamp a sheet metal panel.

So it would be much easier and cheaper to produce variations on a single model, more frequently, than with steel.

Not least of the disadvantages, however, is the cycle time currently required to produce composite body panels. General Motors was able to set a new benchmark for volume production of plastic-bodied cars with its Fiero two-seater (shortly to go out of production), which reached 110,000 units a year at its peak.

This was achieved, however, by duplicating a considerable number of moulds, and the speed of the processes has fallen well short of that required seriously to contemplate the production of mainstream vehicles like a hatchback or medium saloon in quantities of three or four hundred thousand a year or more.

The subject is being taken very seriously by the volume manufacturers, however, and as consultant to the EC Commission on the motor industry, Mr Karl Ludvigsen, points out, "the level at which plastics for this use is considerable viable is going up all the time."

According to the estimates of the Ludvigsen Associates consultancy, it is now standing at around 50,000-60,000 units a year, which is slightly more, for example, than Jaguar's or Porsche's output. The figure coincides precisely with those calculated by March Engineering, the racing cars group which is embarked upon a number of contracts involving composites technology with vehicle makers in the US and Europe.

That represents a rise over the past couple of years from 30,000 units - but is still well short of

what GM achieved. However, production of a volume car using plastic body panels is likely to differ considerably from that of the Fiero, suggests Mr Ludvigsen.

"We are looking at systems in which you have a strong and light floorpan, possibly of aluminium, with a plastic superstructure. The composites used would vary with need - thermosets, which offer the prospect of a high quality finish, for flat surfaces and thermoplastics for the side panels, as with the Z1."

However, the Ludvigsen research discloses, "the people making tools for steel are fighting back with cheaper dies, and steel is still a very fine way of making cars."

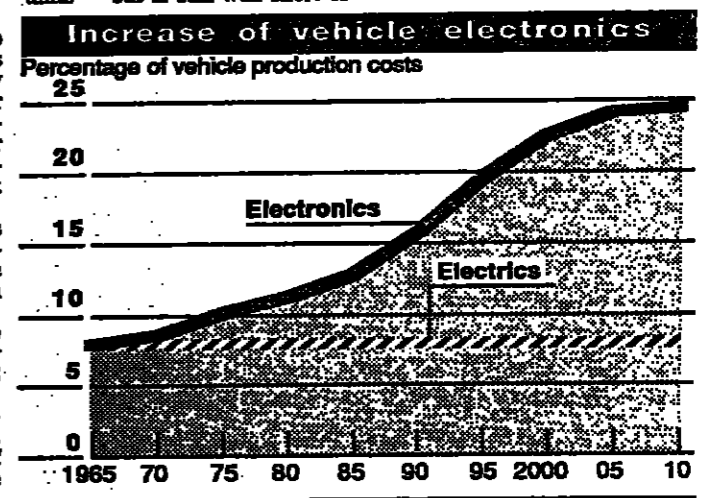
What proportion of cars of the year 2000 might have entirely plastic bodies is, therefore, an open question. But one pointer in plastics' favour appears, again, to have come from Fiat, which plans to make well over 300,000 units a year of its new Tipo.

The Tipo's entire tailgate, except for the glass, is made of BMC compound, a thermoplastic tie-it is made up of two shells, assembled and glued.

The entirely automated production line making it consists of two parallel lines each containing two injection moulding presses. These make the hatch itself, which is then drilled for other parts to be mounted and finished by other robots. Yet another robot applies glue and once the two sections are joined together the tailgate is polymerised in an oven. Lastly it is washed and primed by a robot.

Thus, a fully-finished tailgate is produced at the rate of one every 1.57 minutes.

John Griffiths



WORKING FOR THE AUTOMOTIVE INDUSTRY

WORKING FOR THE AUTOMOTIVE INDUSTRY

Our name... a reflection of their success

Over the last decade the automotive industry has consistently chosen Computervision as its CAD/CAM partner. Our association with over one hundred automotive companies has done as much for our reputation as it has for their productivity. To the majority of this industry, Computervision is the name for computer-aided engineering, design and manufacturing.

Not just household names like Austin Rover, Land Rover, Lotus Engineering, Ford, Leyland DAF, Aston Martin, and Leyland Bus work in partnership with us. A host of less generally known, but equally innovative companies, respond more quickly to market demand because of the abilities our systems give them. Firms producing components, interior and exterior trim, electrical sub-systems, fasteners, radiators, cooling systems and body in white design. In addition, makers of precision moulds and tooling for other suppliers and manufacturers, are just a small selection of areas where Computervision systems are used.

All our users have a common aim: producing better quality products in a shorter time at less cost. They differ only in the size of the Computervision system and the application software they choose to achieve it.

Look at just two of Computervision's partners in automotive action.

Tudor Webasto is the UK's major manufacturer of OEM sunroofs. Four years ago its parent company, CH Industrials, started a major investment programme in manpower, machinery and technology to support it in its bid to dominate this highly specialised area of the automotive suppliers' market. Since then Tudor Webasto's turnover has doubled annually. Its decision to install a Computervision CAE/CAD/CAM system was a major step forward in offering major

manufacturers a closer, more responsive service.

Now it receives the manufacturer's own vehicle roof design data on magnetic tape. Using that same data, Tudor Webasto creates the sunroof and fittings that exactly meet the customer's specification. The design can be verified and approved by the manufacturer using their own system, or returned for modification with no time-consuming, drawing-based intermediary stage. Models are more accurate, and the system allows Tudor Webasto to participate more fully with its customers in the evolution of the motor design concepts of the 1990s. Shortly, the company will install a direct communications link to manufacturers' product databases, simplifying the exchange of information still further. Today, Computervision technology is supporting a small company in its future growth.

At the other end of the scale, Austin Rover is developing, designing and manufacturing a complete range of vehicles using Computervision hardware and software. It lets the company use the same design data throughout styling, packaging, body and component engineering, computer-aided analysis and manufacturing production. The Computervision CAE/CAD/CAM system allows Austin Rover to have total control of quality from early concept stages.

Wherever your company is in the automotive process, Computervision is committed to providing you with the broadest range of application software to meet your engineering demand. It backs its customers with the finest service, support, training and expert industry and application consultancy. Computervision takes partnership seriously.

Computervision - working for the automotive industry.



For more information write to: Computervision Limited, Department MC, Central House, New Street, Basingstoke, RG21 1DP. Telephone: 0256 58133.

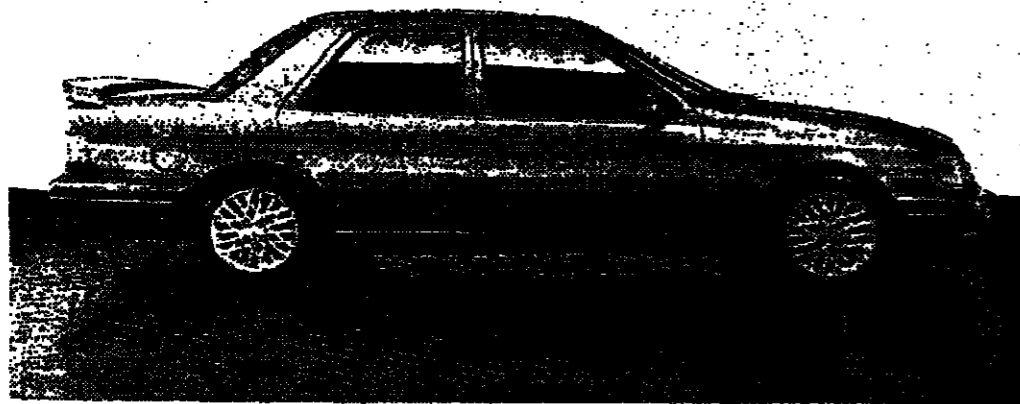
Name _____
Position _____ Company _____
Address _____
Tel: _____

WORKING FOR THE AUTOMOTIVE INDUSTRY

CAR OF THE FUTURE 9

Cosworth and Ford

Fast partnership



The Ford Sierra Cosworth: more conservatively styled than its prototype

THIS IS a watershed year for Cosworth, the UK Midlands-based engineering company which developed the most successful engine in grand prix racing history.

Its long association with Ford, stretching back to the early 1960s, has finally resulted in its name appearing on a Ford car in full commercial production, the Sierra Sapphire Cosworth.

The first Cosworth-powered Sierra, in hatchback form, caused a sensation two years ago when it was revealed as a 160mph, five-seater challenger to Porsches and Ferraris.

That car, however, was conceived as a "homologation special" of which 5,000 had to be built to allow its use in racing and rallying (long-recognised by Ford as a valuable promotional tool).

Despite its outrageous appearance - its huge rear aerofoil coming to be nicknamed the "picnic table" - public response was so positive that a much more conservatively-styled version, based on the Sapphire three-box saloon, was decided upon.

Ford launched it in February, and it will be built in whatever volumes are necessary to meet demand.

Indications are that the Sierra car has set the future pattern for all high-performance cars built in Europe, and possibly elsewhere, which actually carry the Ford badge - although this may not necessarily exclude the AC sports car to be launched in the early 1990s (Ford having bought the British sports car-maker late last year).

The two companies are likely soon to sign agreements under which Cosworth will develop high-performance engines for at

least the new Fiesta, due next year, new Escort due in 1990/91, and possibly for larger Ford cars as well.

As with the Sierra, they are likely to emerge through Ford's Special Vehicle Engineering operations in the UK, under former racing driver Mr Rod Mansfield.

Set up at the end of the 1970s, SVE appears to have no direct equivalent in other manufacturers - it is not a competition department, but it is charged with developing "image" cars like the XR Escort and Fiesta models. Ford did not think of it as a profit centre, but so, indirectly, it has proved: nearly 4m extra sales are estimated to have been generated, nearly ten times more than expected.

Further Ford links promise even faster growth for Cosworth Engineering, founded by the respected engineer, Dr Keith Duckworth, its chairman, and which is now part of the UEM electronics group.

Turnover reached over £30m last year, about double the level of two years earlier.

Much of that growth has come from an aluminium foundry operation set up in Worcester by several years ago, employing a Cosworth-developed process capable of creating castings of great complexity with great accuracy and a low finishing requirement.

Mr Bob Smith, the plant's managing director, points to several contributing factors to why, for example, it produces the complicated cylinder 16-valve cylinder head for Mercedes 2.3-16 high performance model; the use only of pure (not reclaimed) alloys; and the use of rare Zircaloy sand for the moulds themselves.

The process itself draws from

the centre of the molten mass, thus allowing impurities to sink or "swim" in the furnace before gently filling the mould from below using a computerised electro-magnetic pump "borrowed" from the nuclear power industry. This avoids the porosity and oxidation problems of conventional casting techniques.

The process, now formally operated by Cosworth Castings, is patented and talks are said to be going on with several outside companies about replicating the foundry under licence.

Indicative of the process is that it provides a maximum tolerance of plus or minus 40-thousandths of an inch in any plane direct from the mould.

Cosworth has also been moving increasingly into the field of electronics. The electronic engine management unit, EEC IV, now fitted to North American Fords and a growing number of European ones was developed from a unit used on the latest Ford-Cosworth grand prix engine debuted in 1986.

And the engine itself has a significance extending well beyond the race track.

For in another portend of how automotive technology is expected to develop over the coming decades, it was designed to have direct spin-off into passenger car engines, and to be able to draw for its development on all Ford's resources in aerospace, electronics and new materials.

Thus, a pattern of collaboration and information exchange, already well-established between these disciplines, is set to be expanded for as far into the future as Ford and Cosworth care to see.

John Griffiths

IN JANUARY, General Motors unveiled the Buick Reatta, a near-450,000 sporting two-seater with more than a dash of luxury.

The troubled US giant hopes the car, which it describes as intended to create "virtually a new niche in the marketplace," will help burnish GM's somewhat tarnished product image.

Styled at GM Advanced Design in Warren, Michigan, its prototype development and other detailed engineering and manufacturing engineering were in fact carried out in England.

The Reatta is just one of a plethora of projects undertaken for GM by Hawtial Whiting, begun by a group of ex-Ford engineers in 1970 at Fosse, Essex, not far from Ford's own headquarters and Dunton research centre.

Since then, like Worthing-based rival International Automotive Design, it has grown to the point where it has several subsidiaries and employs nearly 1,000 in the UK, at Poles, Basildon, Leamington Spa and Swindon, while there are also subsidiaries in the US and Canada.

The name Hawtial Whiting means nothing other than that it comprises the front half of chairman John Whitecross's surname and other portions from those of the three colleagues with whom he started the business.

Although not involved in power train technology, HW has broadened its early design operations to cover design engineering, project management, structural analysis and die model manufacture. It has had contracts of up to three years' duration, taking a vehicle concept through from basic clay model to the threshold of volume production.

The activities have turned it into a £30m a year turnover concern - although one not without its problems.

Price of high tech components

Relative retail price Volkswagen Golf

250%

200%

150%

100%

50%

0

Golf 55kW

EC emission

standard

GTI 82 kW

EC emission

standard

GTI 10V 95 kW

US emission

standard

Electronic window

Central locking

Memory seats

Power steering

Air-conditioning

Anti-lock system

Catalytic converter

Electronic fuel injection

Ignition timing control

GM and Hawtial Whiting

A half-British Buick

High technology components

Fuel Injection
Electronic diesel control
Multi valve
Supercharging
Automatic transmission
Engine-transmission
Engine-management
New materials
Multi-fuel capability

LCD-display
Auto-phone
Traffic information
Diagnosis
Distance sensor
Fog-sensor

Low air drag
Passive restraint systems
Air-conditioning
Electronic axials
Solar roof
Light-sensitive screens

Anti-skid control
Anti-slip control
4-wheel drive
4-wheel steering
Electronic suspension control
Safety tyres

Exhaust gas recirculation
3-way catalyst
Particulate filter
Engine encapsulation

Its exceptionally heavy reliance for business on General Motors - over 90 per cent until relatively recently - has meant declining profitability as the dollar has weakened.

Mr Whitecross and his colleagues have worked hard to broaden the client base, with some success - Ford, Jaguar, Matra of France and Rolls-Royce now being listed among its clients.



And late last year, it looked as if HW would become part of a more prominent consultancy grouping through a planned merger with First Security Group, a design and technical services provider to a wide range of motor industry customers as well as to security and fire protection industries.

FSG's rationale for what, in effect, would have been a takeover of HW, was closely linked to its view of how vehicle producers would approach their own business in future. The trend to source more and more of the design and development from outside consultancies would, FSG felt, leave the enlarged group well positioned to take advantage of the greater opportunities implicit for on-the-ball consultancies and component suppliers.

At the very last moment, FSG pulled out for reasons which it never fully made clear, although the move followed soon after the publication of half-year results by HW which showed that the weak

Anglo-American luxury: the new Buick Reatta costs nearly \$30,000

dollar was continuing to have an impact on profitability.

Such has been the growth of HW's reputation in the US, however, that it has become a specific target for a number of domestic US rivals. One, SDRC Automotive Services, drew together a consortium of companies under the generic "Team 2000" aimed at providing a broad spread of consultancy services.

"We'll be comparable to a local Hawtial Whiting," its leaders declared at the Team 2000 launch.

HW has invested heavily in electronic and other equipment to provide a creative approach to the business.

Several million pounds has gone into its computer design systems and more into highly-sophisticated measurement and photographic systems.

Tennant Panels, a self-con-

tained subsidiary, supplies the group with metal-working skills for prototype production. HW Structures undertakes structural analysis using finite element techniques and HW Die Aids specialises in soft tooling, project planning, clay modelling, plastic moulding and other activities.

As with any consultancy wishing to stay in the business long-term, it undertakes research in its own right.

For example, the Structures subsidiary currently is focusing heavily on research into vehicle impacts. Its computer modelling on the subject is going well beyond predictions of the behaviour of the vehicle itself in a crash to embrace modelling of human occupants and their response to impact.

Such analysis can be used to minimise crash testing by manufacturers in order to meet legislative standards, as these standards are derived from a mathematical combination of acceleration level and time measured on an occupant's head. Normally measured physically through the use of crash rigs and dummies, the measurements can be obtained equally well by mathematical simulation.

It is not just the motor industry which is interested in this aspect of HW's activities:

■ With legislation also looking for post-crash survivability within aircraft, HW has acquired Civil Aviation Authority approval for the analysis of aerospace structures. The advantages should be fairly obvious: vehicle makers find crash-testing vehicles expensive enough. But airlines?

■ HW is also working with a number of UK companies on researching improved build processes for cars, with a strong emphasis on modular assembly. The advantages of modular assembly, HW executives point out, have long been known to vehicle makers. The trouble is, the differing assembly facilities needed for module-based production mean making production plant redundant, "and manufacturers won't throw stuff away."

This is one of the main reasons why GM's Saturn compact car project, aimed at beating the Japanese at their own game in terms of costs and product quality, had to be greenfield site-based, argues Mr Whitecross.

For as one senior HW engineer puts it, current conventional assembly lines, where interior trim and other detail fittings are installed at the final stages "are a bit like trying to put your underpants on while already wearing your overcoat."

John Griffiths

Delco Dynamics

DELCO ADVANCED SUSPENSIONS TAKE COMMAND

A Delco Advanced Suspension System commands top performance on the road, and that means top satisfaction for your consumers.

At Delco, advanced suspensions begin with the modular strut assembly delivered just in time and in sequence - assuring an accurate, high-quality build.

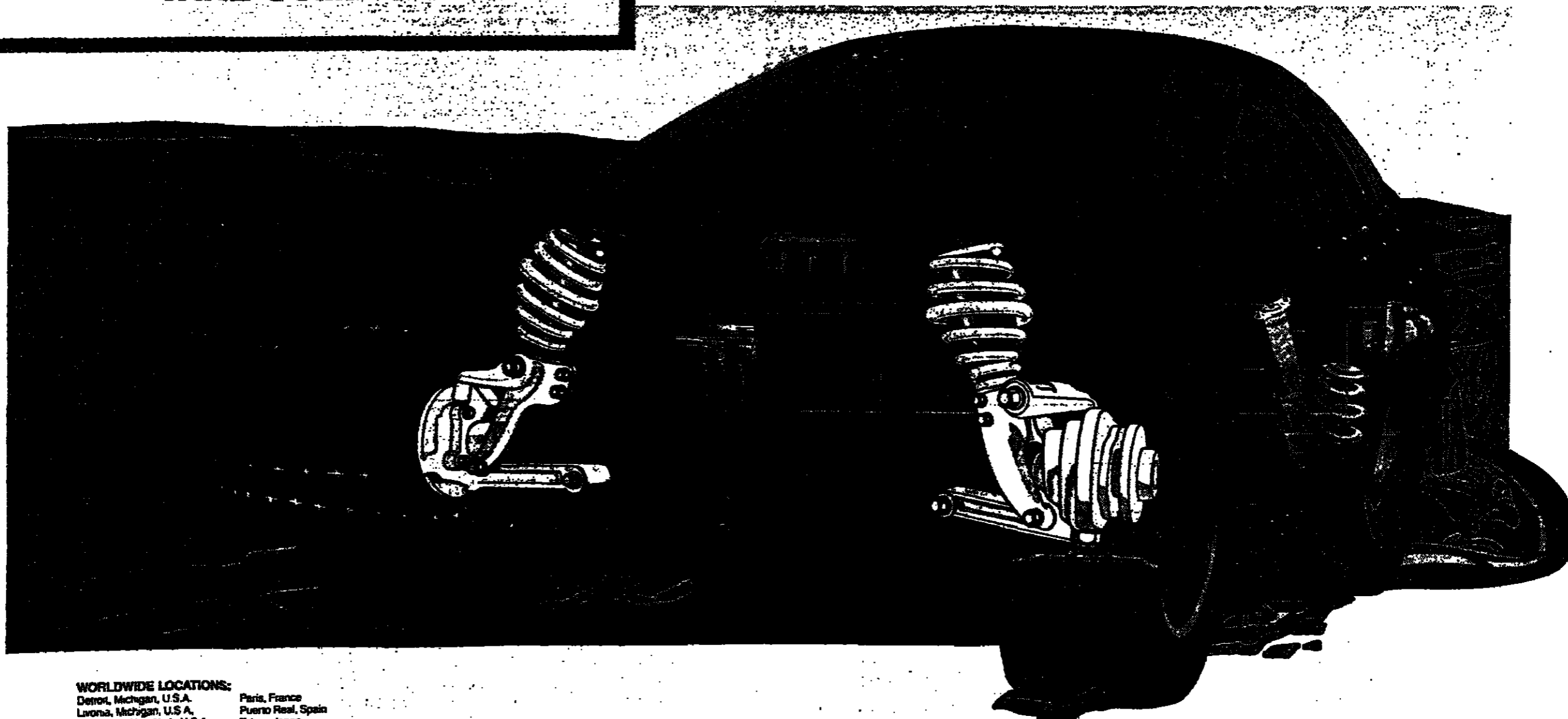
Next is the Delco Automatic Level Control System which maintains the designed vehicle attitude under varying load. Assures a level ride for smooth vehicle handling.

Add to these features the Delco Computer Command Ride System and you can truly produce the car for tomorrow. The Delco Computer Command Ride System, available with automatic road sensing, detects the type of road surface being traveled and adjusts for optimum suspension damping characteristics. This means

optimum ride and handling over all road surfaces. An interface is provided to permit driver selection of specific driving modes whether it's a smoother ride home from the office or responsive handling on a winding road. Delco Computer Command Ride offers a complete ride system utilizing high-technology electronics custom designed for your vehicle.

Delco advanced suspensions also include total air suspension systems to let you provide flexibility and value in your product for today's discriminating consumer.

Talk to us. Find out why Delco Products can offer you quality suspension systems - on time - at competitive prices. Just write or call Delco Products, High Street North, Dunstable, Bedfordshire LU6 1BQ, England (0 582-64264).



WORLDWIDE LOCATIONS:

Detroit, Michigan, U.S.A.
Livonia, Michigan, U.S.A.
Rochester, New York, U.S.A.
Dayton, Ohio, U.S.A.
Kettering, Ohio, U.S.A.
Dunstable, England
Rustoltsheim, Germany

Paris, France
Puerto Real, Spain
Tokyo, Japan
Juarez, Mexico
Nuevo Laredo, Mexico
Guadalajara, Mexico



Delco Products

High Street North, P.O. Box 4
Dunstable, Bedfordshire LU6 1BQ, England

A dynamic leader in systems solutions...worldwide.

CAR OF THE FUTURE 10

John Griffiths profiles International Automotive Design

Awards bloom in hot-house

FEROCIOUSLY red-bearded and unsmiling, Mr John Shute nevertheless is reported by those who know him well to possess a sense of humour.

Usually, however, it remains buried under a complex mass of business concerns to which Mr Shute gives total and utter priority.

The relentlessness with which the former Vauxhall/Bedford engineering-draftsman has pursued the development of International Automotive Design (IAD) from a four-man band 12 years ago into one of the world's biggest design engineering consultancies has won the respect, if not affection, of most with whom Shute has come into contact.

It has been a development pursued with near-puritanical zeal in its literal sense.

IAD's accounts show modest emoluments indeed for the chairman and chief executive who drives the business - and an endless ploughing-back into further growth all that the business earns.

Investment in computer-aided design systems alone has reached \$5m. And IAD's neighbours on its home industrial estate in Woking have watched over the years with bemusement as the company spread from its one initial small building, to three, then five, then half a dozen to the point where it dominates the estate.

Turnover, at \$38m last year, is nearly 300 times IAD's first-year level of \$140,000. The company now provides jobs for over 900. No one doubts that the 1,000 mark will be reached soon.

Unquestionably, Shute and his wife, who control the company between them, could follow the example of March Group and float a part of the company on the Unlisted Securities Market, with a high measure of success. They have thought about - and rejected - such a move.

John Shute can see no attraction in working less hard or, more crucially, having to answer to others for the conduct of the

company which, basically, is his creation.

Like AVL of Austria, IAD rejects all suggestions that its rapid growth might have been based mainly on being simply an extra arm for a vehicle maker's design department - what used to be known in the trade as "rent-a-pencil" until CAD screens came along.

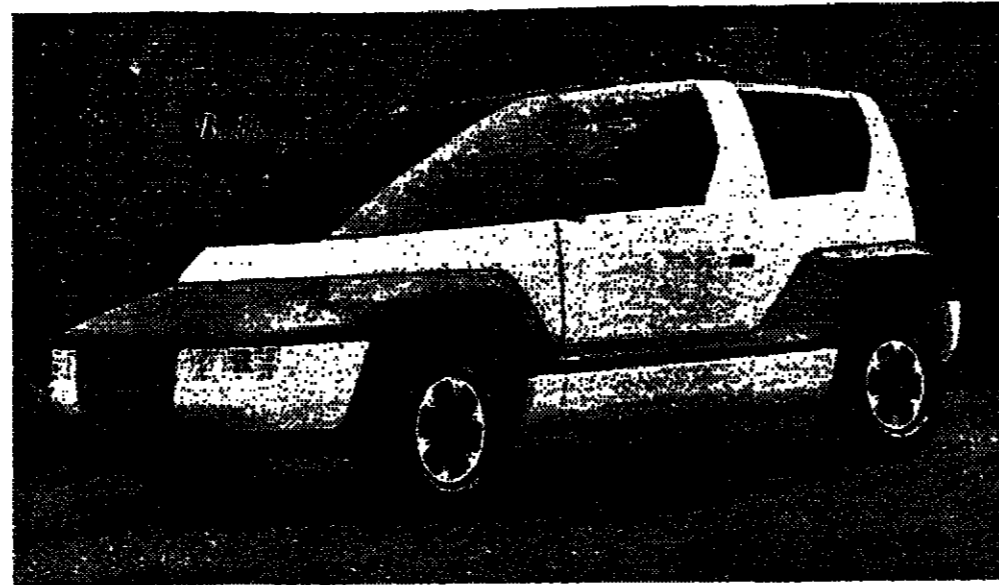
Mr Shute can point to plenty of evidence to justify the claim.

For example, at the Frankfurt motor show last year, IAD unveiled two concept cars of a sophistication which raised many motor industry eyebrows. Unlike many concept cars one, the Impact, was complete mechanically and fully drivable. The other, the Interstate, was non-motile.

Impact, broadly definable as a leisure/utility vehicle and utilising four-wheel-drive, incorporates many of the features which IAD believes should be on production lines now, rather than too far into the future.

The fact that Impact uses a Ford Sierra floorpan and drivetrain is no adverse reflection on IAD, for unlike Ricardo or AVL, its concerns are primarily with vehicle body design, engineering and styling.

Such is the detailed nature of the development of Impact that IAD has been seeking, although so far without success, to sell the package to a North American vehicle producer. It is sufficiently flexible for any one of a number of makers simply to mate the concept to their individual mechanical parts, according to IAD. Its specification includes under-floor luggage space accessed via electrically-operated doors, radical, low-drag styling



Unlike many concept cars, the Impact was complete mechanically and fully drivable

for an off-road vehicle and a new type of high-power lighting system of polyellipsoid shape.

Neither vehicle, however, is as radical as the first concept "car" really to thrust IAD into the limelight, the extraordinary "Alien". This, unveiled more than two years ago as a "modern, compact two-seater sports car for the 1990s" was an extraordinary-looking device, with its power plant and transmission carried within a rear-mounted "pod" visually almost completely separate from the rear-shaped passenger compartment.

With approaching 600 design engineers on its payroll, many of whom at any one time are actually working overseas, it should

not be surprising that Mr Shute and his colleagues now number most of the world's car makers on their client list.

It might be good for the motor trade balance of payments, but it gives Shute only guarded pleasure to be able to state that nearly 80 per cent of IAD's client list is foreign. It includes Saab, Opel, BMW, Audi, DAF, Mazda, Nissan, Isuzu and Subaru.

IAD's biggest customer is Ford US. Almost exactly three years ago, it set up a joint venture with a US counterpart - a subsidiary of CDI Corporation of Philadelphia - to form IAD Modern Design to exploit US potential more effectively.

IAD's work in the UK has been

confined, to date, to the up-market cars sector. It executed the Bentley 90 "prototype" unveiled at Geneva two years ago, to much interest and no chance whatever of production (the car was simply a way of grabbing some publicity for Rolls-Royce) and has worked for Jaguar and Rover as well.

Indeed, there is an undertone of bitterness in Mr Shute's views about the progress or otherwise of the UK motor industry since the 1960s.

For he himself was on the receiving end of a decline bred by managements which, he feels, were usually concerned more with keeping shareholders happy in the short-term than investing

adequately in the continuous design and development needed for the industry's long term health - and implemented with such devastating success by the Japanese.

It was a general falling of UK motor industry management for which many foreign producers were to become grateful. British car designers in this day have a particularly high reputation and the hundreds who fell redundant as the UK industry declined became involved in a large-scale exodus.

"Body designers were ten a penny in the UK, but in short supply abroad," recalls Mr Shute. Now there are literally hundreds of British car designers working for all foreign car companies throughout the world - not a few of them at the very top, for example Mr Wayne Cherry, head of design at Adam Opel, General Motors' West German cars subsidiary.

Before starting IAD, Mr Shute's own career covered working for, among others, Chrysler, Ford and Porsche, sometimes on a freelance basis.

The professional status of design engineers in the UK, he suggests, is still too low compared to that of their counterparts in just about every other vehicle-producing country.

Not, however, within IAD. Its hot-house atmosphere has led to the company being awarded two Queen's Awards for Exports Achievement. It was one of the four runners-up for the 1987 Business Enterprise Award sponsored by the Confederation of British Industry, Barclays Bank and Henley Management College (it being a reflection of British values, perhaps, that Bank of England Governor, Mr Robin Leigh-Pemberton, was present at the award to the Body Shop retail chain).

Some consolation is that it is a winner of Barclays' award as the fastest-growing "high-tech" company. In that sense at least, IAD has no major grumbles about "short-termism" in the City.

rate of about 77 per cent. This scrap rate has now fallen to about 30 per cent and unit costs will fall as volumes rise.

Costs can also be offset by producing a part which is more efficient than its metal equivalent or which removes a more serious design problem.

But ceramics and metal parts can be used successfully together, as shown by the spark plug. However, there is much more research needed. The CARB programme has 13 projects with 28 UK companies participating.

About \$5m has been provided for research so far, with just under half coming from the Department of Trade and Industry. There is provision to spend another \$1m if more projects are agreed.

So far, Japanese industry has a distinct lead in the field, thanks to much larger research programmes. Mr Parker says this partly because Japanese financial institutions are more willing to fund long-term research.

Furthermore, the Japanese are simply more adventurous about putting new technology into production - "there has to be some concern in Europe about the Japanese lead in this sector," he says.

Chris Barrie

Ceramics

Going cool on radiators

vehicle battlefield damage was to cooling systems.

"Some of the wild euphoria has now given way to more healthy realism," comments Dr Alec Parker, managing director of T & N Technology. (He was managing director of AE Developments, the research arm of the AE Group which was bought by T & N in an acrimonious takeover). Mr Parker is also chairman of the Government-sponsored Consortium on Ceramic Applications in Reciprocating Engines, (CARRE).

He rules out as "fantasy" the early optimism on possible development of a ceramic engine in volume production. He recognises that the Japanese car company, Isuzu, has a ceramic engine installed in a test vehicle, but he believes that ceramic materials will be limited to smaller, albeit important, components in the ordinary engine - "a distinct benefit has to be obtained," he says.

Mr John McClelland, chief engineer at Ricardo Consulting Engineers, agrees and adds that

the disadvantages outweigh the advantages of using ceramics in major engine components. This is because ceramics may raise the thermal efficiency of the engine, but they also reduce the volumetric efficiency.

Mr McClelland further points out that ceramics had most to offer the diesel engine which is already fairly efficient. Using ceramics on petrol engines would raise temperatures to the point where the air-fuel mix would ignite too readily.

Instead, Mr Parker identifies four areas where ceramics will make headway in coming years:

■ First, ceramic parts will often be lighter than their steel counterparts. So ceramic valves, for example, will have less inertia and friction and will need lighter valve springs. That, in turn, means better engine performance because the valves have to perform at high speeds.

■ Second, ceramics wear less easily so their use could make sense where lubrication is difficult. Ceramic cams to operate the

valves may be a case in point. Mr Parker estimates that ceramics could last three times as long as steel in such a situation.

■ Third, ceramic rotors are already used in some Japanese turbochargers and this application will become more widespread. The rotors are light and boost power in the engine more quickly, reducing "turbo lag."

Failure of a ceramic rotor is less catastrophic than with steel, too, as ceramics tend to crumble while steel flies into splinters and needs to be well contained to prevent damage to the car or occupants. Producing these rotors is also giving companies valuable production experience.

■ Fourth, insulation properties will be developed for both more power and to reduce radiator needs. The rotors use ceramic exhaust port liners to keep exhaust gases hot as they pass from the engine to the turbo-charger, hot gases contain more energy. Mr McClelland estimates that about 25 per cent of the heat which passes into the cooling

system stems from the exhaust port.

But several difficulties remain. Bonding the ceramic to metal is awkward: the ceramic cracks easily. When the metal expands faster under heat, the ceramic may fall. Mr Parker suggests that one solution is to cast metal parts around the ceramic material when possible.

For example, silicone nitride could be cast into an aluminium rocker-arm where the rocker comes into contact with the valve gear, an area of high wear. The ceramic would be compressed by the contraction of the aluminium when it cools which would be advantageous as ceramics are strong under compression. Alternatively, the entire rocker could be made of a ceramic - "but there are no magic joining compounds," adds Mr Parker.

Cost, too, has to be carefully assessed. The materials are not necessarily expensive, but the quality-control is often costly. The turbo-charger production in ceramics had, at first, a scrap

Profile: Ricardo Consulting Engineers

A long view of transmission

IN THE minds of many in the motor industry, Ricardo Consulting Engineers, based on the south coast of England, is synonymous historically with the diesel engine.

Not without reason: its founder, Sir Harry Ricardo's best-known contribution to the car was the inlet/pre-combustion mixing chamber design which eventually opened the way to the small, high speed diesels which have been commanding a growing share of the West European new car market.

But diesels now account for less than half of the engineering consultancy work Ricardo undertakes for more than 100 vehicle producers and other manufacturers around the world.

Petrol and other engines now account for more of Ricardo's turnover, while like its close counterpart in Austria, AVL, it devotes fully 15 per cent of revenues to its own in-house research activities, for some of which

Ricardo sees substantial commercial opportunities over the coming years. The self-funded research itself is conducted on what Ricardo likes to describe as a split basis - "90 per cent organisation, 10 per cent anarchy" - the latter to allow for and encourage unexpected breakthroughs by its researchers.

No better illustration of Ricardo's broadened approach can be provided than its unveiling to this year's Society of Automotive Engineers congress in the US of a new transmission concept developed on its own behalf.

Ricardo believes its move into transmissions is an entirely logical extension of its engines business.

For it predicts that in the 1990s the transmission, engine and other driveline components increasingly will be seen as a single, integrated unit.

Clearly, from this should derive further consultancy opportunities, while Ricardo is also looking at ways of shortening the design-to-production cycle.

The research is not confined to Ricardo's many CAD screens, but is already in the form of prototype hardware.

It takes the form of two basic concepts, described as the Automatic Layshaft Transmission (ALT) and the Ricardo Advanced Powertrain Management System (APMS).

ALT is based on the use of layshaft-type gearing with power-shifting undertaken by multi-

plate wet clutches. The essence of the system is light weight and simplicity, although the transmission can be made suitable for a wide range of vehicle sizes from small cars to trucks or buses.

As Ricardo readily acknowledges, the concept follows on from various patents arising from the Maxwell bus transmission introduced in 1981.

Several hundred Maxwell units are already in use, for which fuel consumption savings of 18 per cent compared with conventional hydraulic automatic transmission systems.

The first application being developed by Ricardo is for a light car.

The five-speed unit designed to be built at low cost and being fitted to a 1.1 litre car for devel-

opment, is claimed to be a viable alternative to the stepless, continuously variable transmission (CVT) already introduced on small cars by Ford, Fiat and Subaru of Japan, when it is allied to electronic power train management.

Comparable in size and weight to a modern manual gearbox, its use of a wet clutch eliminates the need for a plate clutch and housing.

The APMS is the intended means of achieving this, through the matching of the transmission to engine in a way which will allow the engine to operate as frequently as possible at optimum speeds for efficiency.

As a means of enhancing its transmission capabilities, Ricardo last summer acquired

Tuck Engineering of Carmel, Indiana, to form a new subsidiary, Ricardo-Tuck. Tuck has long-standing consultancy engineering experience in precisely the fields Ricardo is seeking to develop further, in addition to which the acquisition for the first time gives Ricardo a solid physical presence in the US, which is seen as an increasingly valuable market.

The broadening also includes the recent formation of a new group to develop and apply computational fluid dynamics to engines. It is as complex as it sounds, involving the application of software-based numerical methods to solving the fundamental differential equations which govern fluid motions.

What it is intended for, for the future, means fully to understand the nature of the combustion processes as the pressures mount inexorably, for ever environmentally cleaner engines to be developed in parallel with higher, yet more economical, performance.

John Griffiths

Planning Research and Systems

Encyclopaedia meccanica

SITED, slightly incongruously, just off London's bustling Piccadilly is a set of offices where numbers collected from all parts of the world's motor industry get crunched very finely indeed.

The offices are the principal home of Planning Research and Systems - it has others in Tokyo and the US - which began consultancy life in a modest way in 1970.

Some 18 years later its activities have broadened well beyond its early pre-occupations with diesel engines to embrace database development, specialist publishing, and product, marketing and acquisition strategy consulting assignments for at least 70 of the world's better-known vehicle and engine manufacturers.

That this has been possible is due largely to the recognition some 10 years ago of what appeared to be a lack of readily available detailed data about what precisely was being manufactured by whom, where, in what volumes and how the type of product was changing over time.

While vehicle makers themselves inevitably maintain large amounts of data in-house about their own activities and rivals, what chief executive John Martin, publishing director Simon Cannon and their colleagues had in mind was something different: a computerised "encyclopaedia meccanica".

Having concentrated initially on the European industry, PRS in the past four years in particular has spent more than pounds 1.5m expanding the databases to cover the Japanese and North American production and markets, and to break down major components into ever finer detail. By, for example, establishing over several years precisely what engines have been produced, by what manufacturers, in what size, whether they were carburetted, fuel-injected, and if so of what type and supplied by whom - whether they were turbocharged, supercharged or naturally aspirated, or even whether halfway through an engine's life there was a change of carburettor supplier - all such factors have been introduced into the database.

There are straightforward commercial applications, for example helping component makers to identify both opportunities for

themselves and weak spots among rivals, and vehicle makers identify geographic production structures.

But, as Simon Cannon points out, the databases have provided also the foundations for technology tracking and trend forecasting.

A few weeks ago, their latest use emerged in the form of "Automotive Powertrain in Western Europe," analysing power train component consumption in the region's car industry and projecting trends into the 1990s.

These include: a softening in demand for diesel cars, despite recent fast growth, as it has become clear that meeting strict new exhaust pollutants standards is not going to prove a heavy cost burden for petrol-powered cars; the turbocharging of 50 per cent of all car diesel production by 1991; the turbocharger giving way to multi-valve engine cylinder heads as the favoured means of increasing petrol engine performance, to the extent that they will reach 20 per cent of all car engine production by 1991.

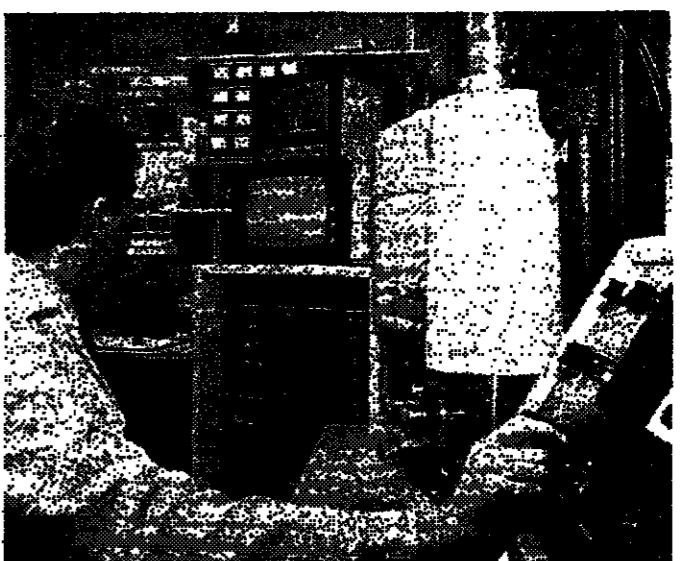
The turbocharger would then be confined to very high performance units, in conjunction with turbocharging.

Use of carburettors, applied to 78 per cent of car engines in 1982, to have declined to 20 per cent by 1991, replaced by multi-point fuel injection, rather than the less sophisticated single-point system widely adopted in North America.

Further rapid growth in electronic engine management systems. According to PRS, some form of engine management was fitted to 3.3m European engines in 1985. This increased by 30 per cent last year, to achieve market penetration of 38 per cent. By 1991, PRS predicts, penetration will have reached 70 per cent.

This year, too, the consultancy has followed up its annual World Diesel Engine Digest, the industry's standard reference work, with a much broader-based +World Automotive Digest+, in which it has sought to provide a yearbook on the world industry embracing car and commercial vehicle production, registrations and trade flows - business analysis of vehicle makers and their inter-relationships, as well as technology trends and developments.

John Griffiths



Research intensifies in automotive electronics

New materials and products are being combined to provide tougher, smaller electrical interconnection systems for the car of the future.

With warranty periods for some electrical/electronic systems now in excess of three years - and with 10 years being seriously proposed - equipment is expected to

reliably perform when exposed to high and low temperatures, water, salt, fuels and many other contaminants as well as electromagnetic interference.

In the quest for more advanced systems, a researcher (above) at Raychem uses a scanning electronic microscope to examine materials in three dimensions. For over 30 years, the group has researched and developed a wide range of products for the motor industry.

The materials science company employs 10,000 people in 50 countries and has its corporate headquarters at Menlo Park, California. Its European research centre is located in the UK at Swindon.

"We're the Motor Industry's Worst-Kept Secret."

K. E. Ludvigsen MSAE
Managing Director

Your passion for confidentiality is well known, Mr Ludvigsen. The Motor Industry must keep its secrets. But a company like yours that has handled more than 150 projects in its first four years can't be kept under cover. The premier clients worldwide who consider Ludvigsen their "secret reason" for expanding their horizons and capabilities with quality support and counsel, have revealed the existence of a creative management consultancy dedicated solely to the motor industry, delivering high value for money with custom-built services that are tailored to lead directly to profitable action.

"Industry insight" comments on key issues facing the motor industry. Please request your copy.

LUDVIGSEN ASSOCIATES LIMITED
Suite 204 105/106 New Bond Street
London W1Y 9LG England
Telephone (01) 493 7711
Telex (01) 491 8997
Telex 261376 LOFBN-D-G



MCA

The most advanced independent design and engineering facility available

...shaping the future today

MGA Developments Limited
Birmingham Road, Alsey, Coventry CV5 9QE, England
Telephone: (0203) 405188, Telex: 312213, Fax: (0203) 405189

VEHICLE DESIGN & ENGINEERING

A RANGE OF EQUIPMENT FROM THE VERNON GROUP MEETING THE DEMANDS OF THE AUTOMOTIVE INDUSTRY WORLDWIDE

VERNON WILKINS	THE BROWN ENGINEERING CO.	VERNON HMM
Vernon Wilkins Ltd., Richards Street Darlston Worcestershire West Midlands WS10 8AN	The Brown Engineering Co., Lye Stourbridge Worcestershire West Midlands DY9 8DS	Vernon HMM Ltd., Wilkinson Road Darlston Worcestershire West Midlands WS10 8JG
tel: 021-626 3111 telex: 338337 WILKIE G fax: 021-626 2438	tel: 0894 49041 telex: 338090 BROWN G fax: 0894 484509	tel: 021-626 3398 telex: 336106 VERME G fax: 021-626 5261
Design and supply of metal forming equipment from 100 tonnes single action presses to fully automated machinery projects	Design and supply of processing equipment including high speed press feed lines	Design and supply of power presses and press brakes ranging from 20-500 tonnes capacity

Members of the Vernon International Group plc

RICARDO

Ricardo is one of the world's leading powertrain design and development consultancies, providing Technical Support Services to the majority of the world's automotive manufacturers and suppliers.

The Car of the Future will require a total powertrain technology to enable it to meet increasingly stringent commercial and engineering demands, including:

- Performance
- Economy
- Emissions and noise
- Management and control
- Size and weight
- Cost

Ricardo has the advanced technology and the staff, backed by an intensive research programme, to meet these requirements. For further information on any aspect of Ricardo's activities contact Brian Randall, Business Development.

Ricardo Consulting Engineers plc
Ridge Works, Shoreham-by-Sea,
West Sussex BN4 5PG
Tel: (0273) 455911 Telex: 87383
Fax: (0273) 454124

CAR OF THE FUTURE 11

Profile: AVL, one of the world's largest independent automotive consultancies

An unlikely cradle of engine technology

GRAZ, on the southern tip of Austria and a stone's throw from the Eastern bloc, is not an immediately obvious place to house a cradle of technology for the car and truck industries of the West. Yet the location of AVL, a company that has proved to be a potent force in its growth since it was founded by Professor Hans List in 1948.

Still in family hands, AVL is an independent research and development centre, mainly for internal combustion engines, which currently employs 980 at the Graz site itself and a further 150 in offices at key motor industry centres around the world.

Nearly half are engineers or in other ways professionally qualified, working and communicating using computer systems utilizing more than 300 VDU screens.

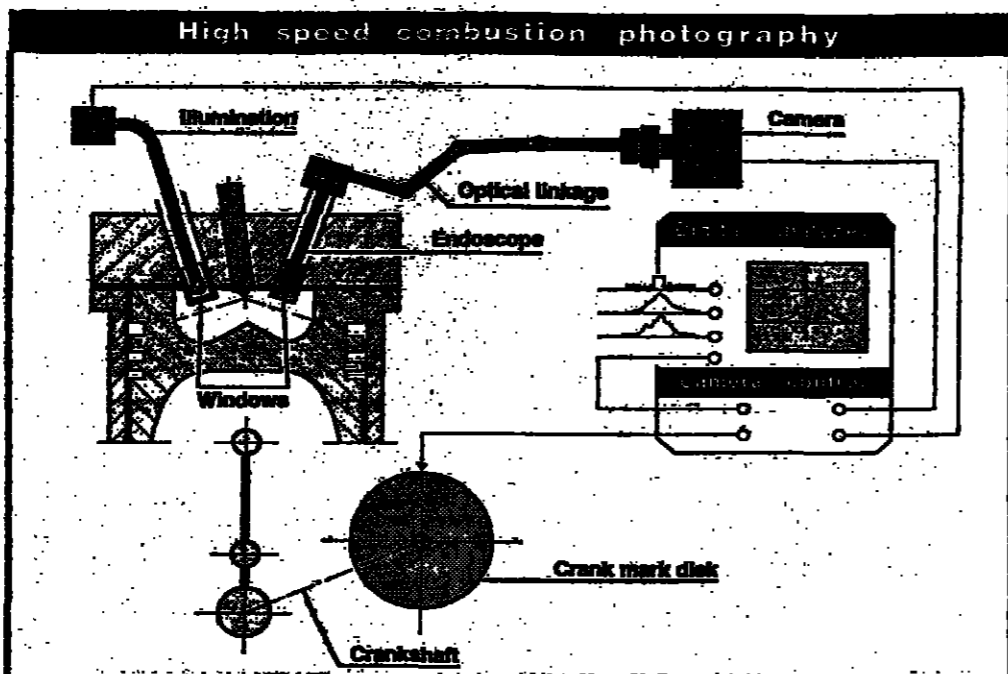
That puts AVL among the largest automotive engineering consultancies in the world, although not in the same league as some North American operations.

This, however, does not concern Helmut List, Director, son of the founder and the company's president. Such North American operations depend heavily for their turnover on relatively uncomplicated engineering or design contracts from vehicle producers, who often see such companies as "dead levelers" for their own engineering departments.

Herr List and his colleagues make clear, in a restrained manner, that they in no way regard AVL as a "rent-a-screen" operation - an assertion seemingly borne out by AVL's regular commitment of 15 per cent of turnover to its own raw research, unlikely to any specific client contract.

AVL's long history has produced a situation in which hardly a vehicle manufacturer in the world has not had an engine conceived or further developed by the company. When locomotive, marine and industrial engines - some of up to 8,000kw - are included the total runs to over 400.

The commercial confidentiality rules which govern all commercial work preclude a list. But



just one example which AVL can quote, the world's first high-speed direct injection diesel engine fitted to Ford's Transit van, was conceived in Graz.

AVL is quite content to take a brief from a manufacturer on what it wants to achieve with a certain vehicle or range of vehicles - and develop an engine from scratch for it right through to manufacturing working prototypes.

"What is really important is that a car or truck maker should set out, in advance and great detail, what it is seeking," says Herr List. "Some do not. More surprisingly, even when a manufacturer thinks he knows what he wants, sometimes he does not automatically go out and seek

alternative options on how an engine might be best approached.

"It is something I do not understand. Now, today, it can cost £2½m to bring a new volume engine into production. Some manufacturers are prepared to spend that but not to research the engine itself properly in the first place - a procedure which requires, comparatively, less than peanuts. Sometimes, I do not understand them."

Expansion has been such that there are now 45 separate test beds for engine development, backed by laboratories specialising in a number of supportive applications. These include fuel injection systems, stress and noise analysis and fluid dynamics.

Analytical tools include 20,000 frames-per-second photography of what's happening inside combustion chambers, thanks to an endoscope system using transparent engine valves. The system is AVL's own - one of many spin-offs from its instrumentation activities which now account for nearly half its turnover and which extend into the worlds of medicine and ballistics as well.

In what amounts to a partial role reversal, AVL also makes and sells its own engines to other manufacturers for research purposes - as well as engine test cells, pressure transducers and other diagnostic systems. It has also collaborated with Coman, Fiat's robotics subsidiary, to develop cold testing of produc-

Robot head measures engine noise levels

This highly-sensitive artificial head is used by AVL of Graz in Austria to measure noise levels of engines and vehicles, thus preparing the way for quieter, more comfortable journeys in the car of the future.

Many complex factors influence the way that human ears detect variable noise levels, but this system is able to record with computers and plot a subjective impression of troublesome noises so that they can be analysed and reduced.

HIGH SPEED PHOTOGRAPHY: (left), this analytical system is used by AVL to produce 20,000 picture frames-per-second to reveal what is happening inside an engine's combustion chambers, using an endoscope and transparent engine valves. This equipment also has new applications in the very different worlds of medicine and ballistics.



sight it appears to fall promptly into the category of being so obviously superior to a conventional, axial fan as to make one wonder why it has not been a standard fitment on all cars for the past two decades.

Roughly similar in shape and diameter to the cutting cylinder of a non-rotary lawn mower, it is mounted low down across the front of the car. The radiator can be laid flat beneath it, with the cooling air ejected downwards. Thermally more efficient than the conventional type, and possibly quieter, its main advantage is seen, however, as allowing car designers substantially to lower bonnet lines in their pursuit of greater aerodynamic efficiency.

AVL is also looking, on its own behalf, at encapsulation of diesel engines as a means of reducing subjective noise, and has at least one running prototype. Even the measure of noise itself is by no means as simple as it might appear. The old system of installing a microphone in a car's interior to measure decibel levels is no longer good enough but requires subjective input. Insist AVL engineers - thus the development of an acoustically correct artificial head to register it.

These, however, are just a few of the research projects going on at Graz and largely funded by AVL itself.

All contribute to what List sees as a fundamental role for AVL - "to challenge a client company's thinking and come up with alternative concepts." Nor is a client necessarily a vehicle maker. With car makers requiring much more design and innovation by their principal component suppliers, AVL is finding more and more business in the components sector itself - another development which bodes well for consultancy growth.

Long-established in the UK, under motor industry veteran Jack Read, and several other European centres, as well as in the US, AVL is now also seeking to tap the potential provided by the Japanese motor industry.

John Griffiths

Lotus view on 'active' suspension systems

Enthusiasm abounds

ACCORDING to Mr Peter Wright, technical director of Lotus Engineering, after driving a car with "active" suspension, "you return to your standard everyday model convinced that there is something wrong with the latter."

"What I think is so satisfying about the Active programme is that people judge it as a piece of real technology and not merely display trickery."

"The moment you get into the vehicle you can tell it's the equivalent of having another 100 horsepower."

It is entirely understandable that Mr Wright, and General Motors-owned Lotus, should have such enthusiasm for a car suspension controlled by a computer, sensors and fast-working hydraulic rams so that it can "read" road surfaces and counter-act irregularities - even lean the car into a corner if programmed that way.

For it is shaping up as one of the principal revenue-generators for Lotus' consultancy engineering activities for far into the future.

Although only Lotus' GM parent (still apparently sticking firmly to its commitment to Lotus' independence after buying the UK concern two years ago), Volvo and Chrysler have acknowledged that Lotus is developing "active" systems for them, at least half a dozen more companies are under contract.

Precisely when the cars utilising the system's potential to the full will appear, remains an open question. GM's next Corvette sports car is the most likely candidate, its high retail price allowing enough scope for the expense inherent in the hydraulic rams system to be absorbed.

The rams themselves hold the key to a full "active" system, for their need to be able to lift an individual wheel over a bump at speed, for example, to prevent road shock being transmitted into the interior requires reaction speeds measured in very small fractions of a second.

Achieving the desired response times, plus getting the size, durability and production costs of the

rams down to economic levels is one of the main challenges being tackled by Moog-Lotus Systems, the joint company Lotus formed with the American components and electronic systems nearly two years ago. Lotus acknowledges that they are still some way off.

That has not prevented several Japanese manufacturers applying the "active" label to several of the cars they have introduced over the past year or so.

Their suspensions certainly use sensors at each wheel which react to road irregularities, steering inputs and sudden acceleration or deceleration to change the car's shock absorber setting. Thus, for example, the car would be helped to behave better in the hands of a "press-on" driver by the right-hand suspension automatically stiffening in a left-hand bend to limit rolling.

The crucial difference between this type of system, as also fitted to Ford's latest Lincoln Continental model - though without Ford itself claiming it is "active" - and Lotus, is that the electronic control is still only being applied to a conventional shock absorber which is essentially passive.

Yet Mr Wright and his colleagues are perfectly aware that, in the long-term, "active" suspension will be just one component system of the "intelligent" car of the future - integrated, under electronic management with active steering, anti-skid and traction controls, engine management and collision-avoidance systems.

However, Mr Tony Rudd, managing director of Lotus Engineering, suggests that the full significance of active suspension in engineering and manufacturing terms is not yet widely appreciated.

Because wheel movement would be reduced by the ram system, clearance around the wheels can be at least halved, ground lines lowered, making it possible eventually to use racing car "ground effect" principles to suck the car on to the road aerodynamically and thus improve

road-holding and safety.

Even more important, there would be no need for the conventional complex mass of wishbones, radius arms, struts, springs and shock absorbers that make up current suspension systems so the vehicle structure itself can become lighter, and simpler and cheaper to manufacture.

Taking such concepts to their logical conclusion, the engine and transmission could then become lighter and more economical. With the engine at the front and transmission placed at the rear, the suspension could then be attached directly to these vibrating masses and the actual passenger compartment thus left in active isolation not just from road shocks but from mechanically-induced vibration.

Even Mr Rudd, however, acknowledges that the year 2000 is likely to have passed before concept becomes reality.

With the financial umbrella now raised over Group Lotus by its giant US parent, which is backing a £27m expansion programme for the once resource-short sports car and engineering concern, Lotus is well placed to advance its research and development engineering over a wide front.

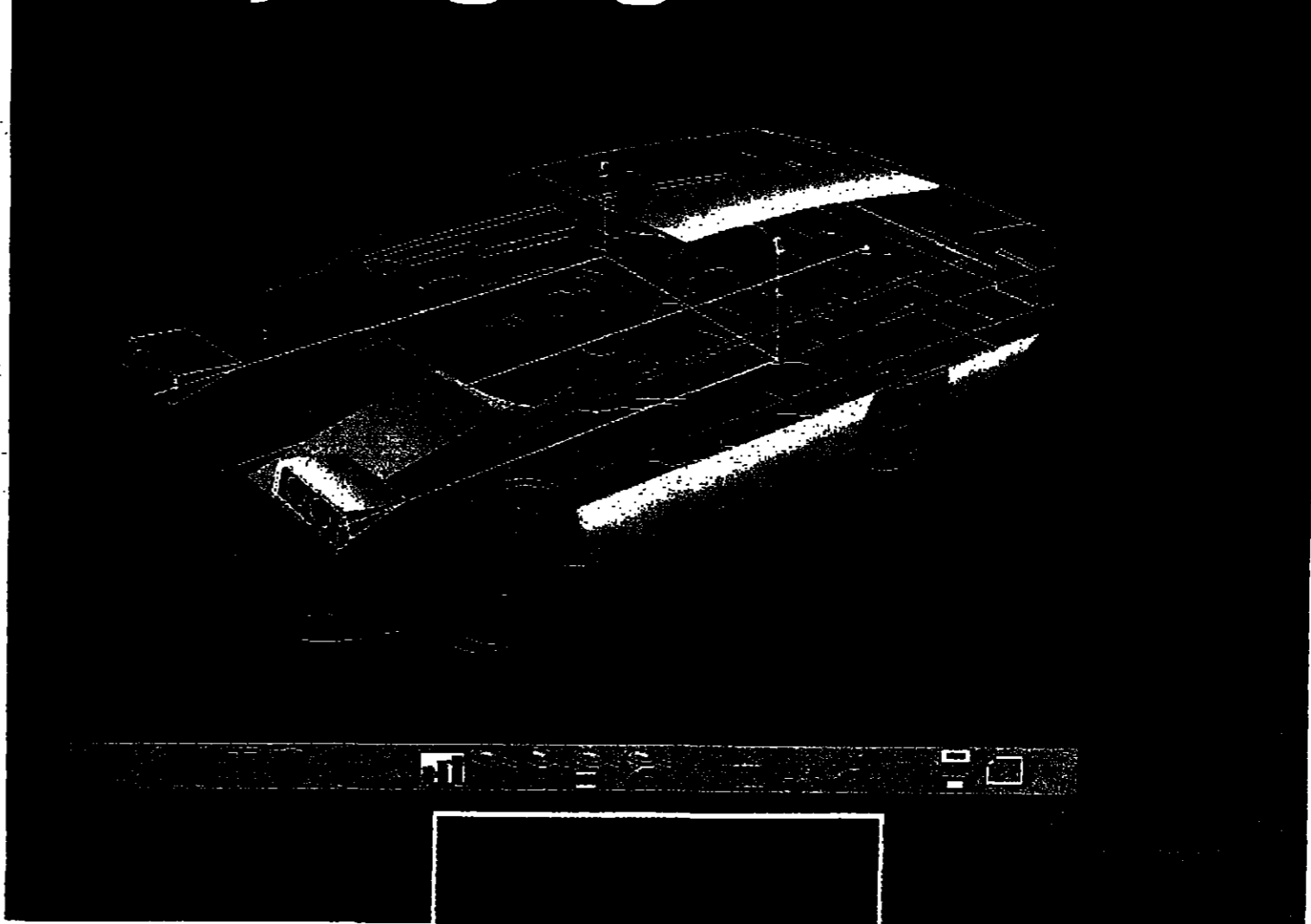
Many in the industry believe that it is the innovative engineering that was displayed by the small British group - which still employs less than 1,000 - reflected in its string of grand prix racing victories which attracted GM to it, rather than its actual car production.

Even so, Lotus plans to increase car output from less than 800 last year to more than 5,000 by 1992, following the launch of its all-new Elan two-seater next year.

And the Elan itself is expected to reveal that Lotus has plenty of tricks up its sleeve when it comes to addressing a problem becoming more urgent among car makers - how to transmit high horsepower outputs efficiently through front wheels that have to steer as well as drive.

John Griffiths

Body language of the future



We speak it now.

In advanced steels and steel composites to take the automobile well into its second century.

In precisely-engineered steels that will cost-effectively outperform any alternative materials.

British Steel is already a major supplier to the multi-national automotive industry.

Responding positively to its changing demands, Tenform high tensile steels are making it possible for designers to reduce body weight whilst improving structural strength and safety.

Zalutite, a new zinc/aluminium alloy coated composite, offers heat resistance of up to 315°C for many components, including exhaust systems.

Zintec, the electro-zinc-coated steel, provides a high level of corrosion resistance and a superb painting surface - in double and single sided forms.

And the organic-coated composites (Colorcoat pre-painted and Stelvetite vinyl-laminated) offer a range of woodgrains, patterns and

colours for interior fittings like consoles.

Cold reduced steel offers a whole range of mechanical properties and ductility, performing daily in automotive panels and components in a wide variety of complex pressings.

It meets the new technology and flexibility demanded by manufacturers, compatible with CAD/CAM component and tool design.

New nickel flash Ternex is a favourite material for petrol tanks throughout the world, and is ideally suited to precision pressing.

British Steel is reaching best standards of quality, consistency and productivity. Producing the materials the automotive industry needs today. Developing products in anticipation of tomorrow. And backing them all with unmatched technical support and fair-dealing customer service.

HOT ROLLED • COLD REDUCED • GALVATITE • ZALUTITE • ZINTEC • TENFORM • TENBOR • VESTEEL • TERNEK • COLORCOAT • STELVETITE

BSC Strip Mill Products, PO Box 10, Newport, Gwent NP9 0XN. Tel: 0633 290022. Telex: 497601.

BSC Strip Mill Products: The steels for industry.



Electronic suspension: Ford's front-wheel-drive 1988 Lincoln Continental features a new suspension system combining the "butterfly side" of large luxury saloons with the vehicle dynamics of high-performance cars. Depending on road and driving conditions, the system switches electronically from one mode to another.

CAR OF THE FUTURE 12

Designers face complex challenges because the commercial risks for manufacturers today are so great, says Chris Barrie

Good design: a crucial factor in car sales success

THERE WAS a time when automotive design in Europe was positively discouraged by general design schools and, to some extent, this attitude still lingers, according to industry observers.

This bias came largely from the Bauhaus and Ullmann traditions of design education, which took the view that automotive designers were really "stylists," says Mr Nigel Chapman, who is head of the department of transport design at the Royal College of Art in London.

The RCA trains between 10 and 12 designers a year, all post-graduates. The course was set up with vehicle companies in response to the shortage of good automotive designers which arose from the anti-automotive ethic which was prevalent in many design colleges in Europe.

Mr Chapman says that even today he has to advise some students outside the RCA to carry out their automotive projects in their own time while completing general industrial design courses.

Nowadays, however, young designers have an easier time finding appropriate training.

In the mid-1970s, the shortage of automotive designers led to the RCA graduates being labelled "young whizz-kids" in the sector. There were job opportunities worldwide with high salaries.

Prospects now are changing. There may soon be too many automotive designers - "we are reaching a predictable level of capacity in the traditional automotive studio. The need for new designers may be regulated now by retirement and natural wastage, not by any explosive demand," says Nigel Chapman.

Successfully designing a car, truck or bus is one of the most challenging tasks an industrial designer can choose, especially since the commercial risks for manufacturers are so great.

For example, when Ford launched the Sierra, the car's rounded shape was an innovation, but there were sales problems in the UK, one of Ford's most important markets. The setback allowed the more conventional Vauxhall Cavalier to make significant headway in the com-

pany-car market which had been dominated by the Sierra's predecessor, the Cortina.

"So, rather like Admiral Jellicoe, an auto designer is the only man who can lose a war in an afternoon," says a market analyst. "A wrongly-designed car becomes a marketing nightmare, following an investment of per-

Product-development personnel need more recognition...If we do not have an intelligent manufacturing design base, then we will be in trouble.

haps \$1bn in factories and new production plant."

Such a design responsibility can be awesome, even when it is shared by a large team of designers.

In a drive for high design standards, Uwe Bahnsen, director of education at the Art Centre College of Design in Lucerne, Swit-

zerland, makes discipline and right attitudes a high priority. He says: "We expect students to attend full day classes of six hours, and two and a half hours of academic studies thereafter. There is no laxity, like showing up at the start of the day and then drifting off."

Mr Bahnsen knows what indus-

tries need from designers. For 26 years he was Ford of Europe's Vice President of Design. He recognises that automotive design training can all too often become overly theoretical and philosophical.

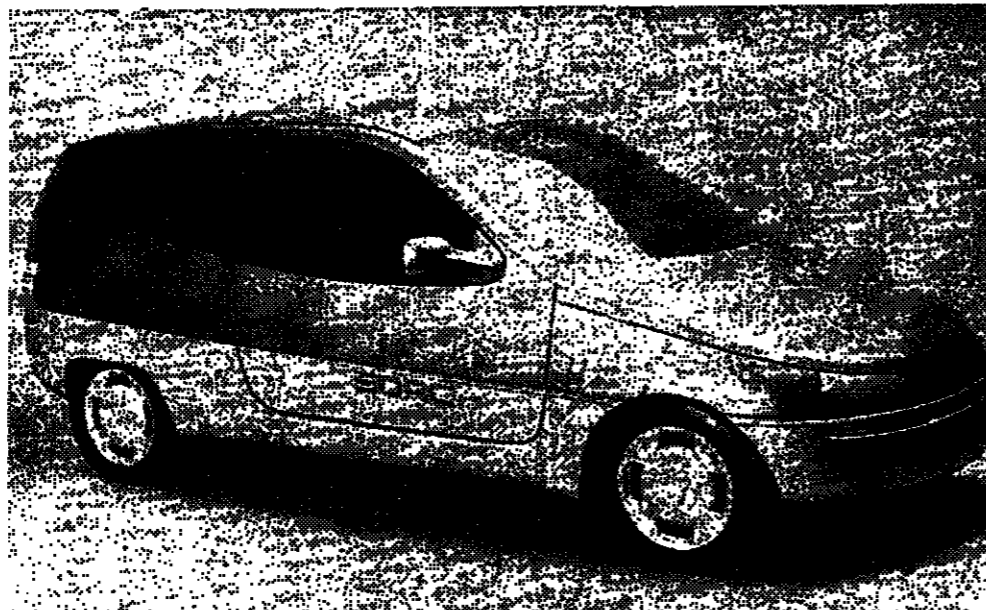
"Theory is, of course, important to create a solid foundation and broad understanding," he

says. "But I find that many schools - and I cannot single out the UK in this - tend to be distant from design requirements. So when the student gets into an industrial environment, he suffers a culture shock and it can take him a long time before he is a contributory member of a team."

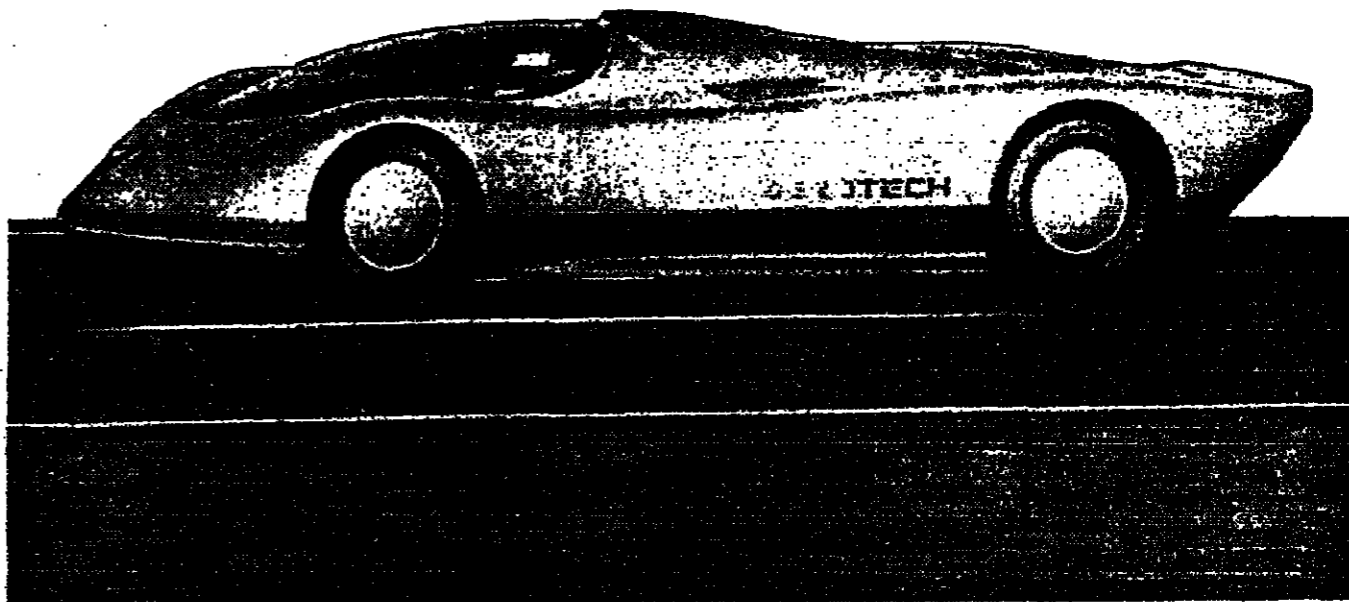
"When students graduate from here, I want them to be ready."

Young vehicle designers need to know far more than just how to draw well; they have to understand about manufacturing technology, new materials, structural requirements and motorising standards and legislation - "the more you know about these aspects, the more freedom you have to work within them," says Mr Bahnsen.

Some car designers see themselves as problem-solvers in the widest sense. For example, Mr Roy Azz, design director of Austin Rover, believes that it is his



Tom Karen's Ogilvy Design consultancy carried out the styling and made the model for this concept car for computer software and engineering group SDRC. It is in the "supercar" category. Its purpose was to demonstrate that SDRC's capabilities extend to body structure concepts.



General Motors' Aerotech concept car, a "flying test-bed" for General Motors' new Quad 4 engine. The car itself will not go into production.

role to make sure a car is reliable. Designing a car is done in three stages, he says. First comes the need to lay down the basis of reliability. Then comes the problem of "adding the bits the customer wants." And the third task is to give the vehicle individuality.

At the RCA, Nigel Chapman strongly emphasises the need for drawing skills and creativity, for unless a designer skilfully puts his ideas on paper, he is useless. Mr Chapman also stresses the need to design car interiors to very high standards because the driver will spend perhaps 30 seconds a day looking at the outside of the vehicle, compared to the many hours spent inside the vehicle.

He says that what counts in Britain "is the quest for developing creativity. One senior American designer said he found RAC graduates more thoughtful than the highly trained technical graduates from America. But then, the RCA student should be; this is a post-graduate course and the students spend two years blowing

their minds in a wonderful way."

The RCA studies are crammed with models and sketches of advanced cars. One model, soon to go on public display, is a four-seater with children in the front but facing backwards to look at the parents. The car is driven by two large wheels, one at each end, with power being supplied through the road surface.

"If the mechanics of this were feasible today, then it wouldn't be the future," says Mr Chapman. The future for British designers lies with automotive consul-

tancies which help vehicle companies develop new products, often at short notice. According to Mr John Shute, chairman and managing director of International Automotive Design in Sussex, "consultants can even out the peaks and troughs of demand made of designers," thanks to product cycles. "By using consultants, car companies can keep minimum levels of product development personnel."

The growing strength of the consultancies is epitomised by the intended sale of facilities owned by General Motors to independent agencies. The Millbrook Test track is likely to be bought by Lotus for consultancy work while the truck and bus engineering facilities in Luton may go to JVB Designs.

Many UK automotive designers spend some time working overseas. Like the motor industry itself, design is international. Ford uses its design capability as a "global resource" and it uses satellite links to employ designers from one region to work on projects being masterminded by studios in another region.

Yet Mr Bahnsen appears sad to see the disappearance of European design talent to far off countries. He adds: "There is insufficient recognition of design in the UK industry. That is why designers go abroad. Higher pay is not the key issue. British car designers can command higher salaries overseas."

Mr Chapman goes further, however. He warns that "product development personnel need more recognition within their own country. If we do not have an intelligent manufacturing design base, then we will be in trouble."

The test of intelligence

Continued from Page 1

ment is required, it could well make more sense for car makers to shun the in-house route if several vehicle makers' needs could be met from an independent supplier by using partly or fully standardised sub-assemblies.

This, obviously, would be particularly attractive to a car-maker where a particular technology subject to rapid and continual change is involved.

A theme running through all these changes, however, is the need for not just the vehicle and component makers to mesh more closely, but the components themselves.

For as Ford is making clear during a current UK lecture tour on the "intelligent" car, and as Dr Walker and yet others in the industry stress, it is the compatibility of the individual electronic ingredients, and their ability to form complementary "expert systems" which, in the end, hold the key to the car of the 21st century.

"What we're looking for," according to Ford's Faraday lecturer, Mr Miles Westbrooke, "is total control over the whole driving process, from the piston to the wheels - the bringing together of 'active' systems controlling the car's dynamic behaviour, engine management, route guidance and all other individual ingredients under one integrated

control system."

"When that day arrives, so will have the intelligent car."

Inevitably, the plethora of concept cars unveiled in Tokyo last November, the introduction by Honda and Mazda of four-wheel steering and other technological advances has sharpened debate on the relative position of the Western and Japanese industries in the race towards the intelligent car.

The compatibility of electronics and the ability to form 'expert' systems, hold the key to car of the future

The jury is still out, and likely to remain so for several years yet.

No Western car, for example, is offered with four-wheel steering (4ws). Yet Audi developed one a decade ago, and General Motors has long had running prototypes. Both argue that they are by no means certain of swiftest cost-benefit to customers. Prof Ulrich Seiffert, a senior Audi/VW executive who was himself head of research until last year, is scathing of what he sees as unco-ordinated "stupidly" innovation by an industry which, he declares provocatively, is able to use double domestic consumers as tech-

nology "guinea pigs" in a way that no Western company could do.

Given the precedents set by Japanese domination of other industries, only time will tell if such views are self-delusory.

Prof Seiffert confessed to being much more worried about Japanese production efficiencies - another factor to weigh heavily in the car of the future.

Flat Auto's managing director, Mr Vittorio Ghidella, makes no bones about his view that between the West and Japan lie two different production philosophies.

"The Japanese automated in the 1970s and continue to place emphasis on efficient workers."

"Automation becomes necessary in Europe because our workers are freer and have other values than pure work. So automation is the right reaction."

Flat is practicing what it preaches: the Tipo model which it launched in January is being built at Fiat's Cassino plant by the most automated processes in the world. It is assembled almost

entirely by robots from 14 separately produced modules and even tested by robots when it rolls off the line.

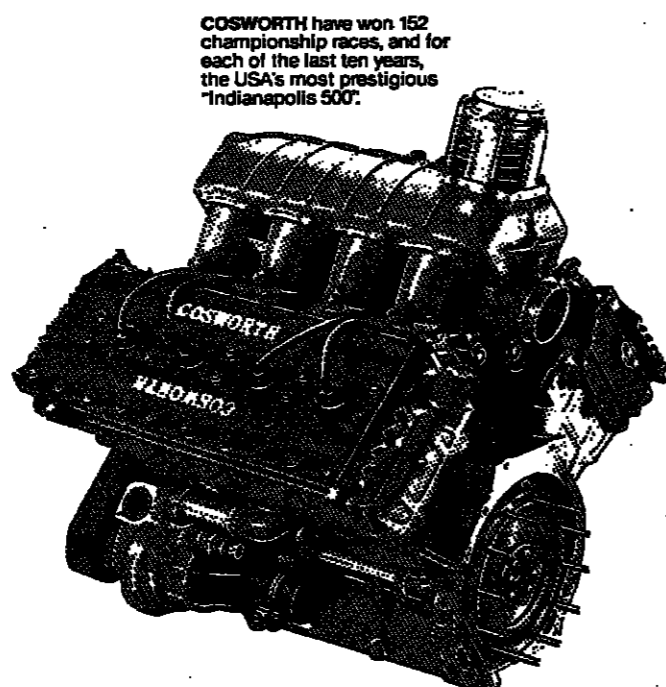
It still requires a giant leap of the imagination, but no longer provokes total incredulity, to envisage "lights out" manufacturing of almost an entire car some time in the 21st century.

In the meantime, Mr Karl Ludvigsen, the former Ford of Europe vice-president who now runs his own consultancy, with headquarters in London, suggests that there is yet one further way in which the European industry could cut costs substantially, against the background of the EC's intention to dismantle internal barriers to trade in 1992.

This, he says, should open the way for manufacturers to share the expensive-to-produce platforms around which all cars are built and for which real economies of scale start at half-a-million units a year and above.

As Mr Ludvigsen points out, motorists would never know the difference.

Intelligent manufacturing?



COSWORTH have won 152 championship races, and for each of the last ten years the USA's most prestigious 'Indianapolis 500'.

WORLD CLASS PERFORMANCE

For over 20 years the Cosworth contribution to the International Motor Industry has made us world leaders in the creation of high performance engines and precision components.

Dedicated and highly skilled engineers, advanced technologies, including a fully automated foundry, together with continuous research and development, uphold the highest standards you've come to associate with the Cosworth name.

No one knows better than us that "racing improves the breed". Our strong race ethic runs parallel with a company policy of carefully planned growth, to meet the ever increasing worldwide demand for Cosworth design, development, prototype manufacture and volume production for road cars such as the new Ford Sierra Sapphire RS Cosworth.

World class performance from world class engineering. That's Cosworth.

COSWORTH

COSWORTH ENGINEERING LTD.

ST JAMES MILL ROAD • NORTHAMPTON • NN5 5J • U.K.

Tel: (0604) 52444 Telex: 31454 Fax: (0604) 586380

ALSO AT WELLINGBOROUGH • WORCESTER • HARLOW • LOS ANGELES (USA)



UEI
member company

MIRA

POWER TRAIN TECHNOLOGY

Consultancy - Design - Development

The latest technology

The best test facilities

The most confidential service

Consultant

Dr David Tidmarsh

Power Train Division

Motor Industry Research Association

Welling Street, Nuneaton

Warwickshire CV10 0TU

Tel Nuneaton (0203) 348541 Telex 311277 Fax (0203) 343772

MIRA

UNIVERSITY OF BATH

SCHOOLS OF MECHANICAL ENGINEERING AND MATERIALS SCIENCE

RESEARCH IN AUTOMOTIVE TECHNOLOGY

The Schools of Mechanical Engineering and Materials Science have been engaged for many years in advanced research projects related to the automotive industry, both in direct collaboration with industrial companies and through joint government sponsored contracts.

The major fields of activity are:

1. Fundamental studies of ceramic applications, coatings and materials in engines, covering both materials and engine component aspects.
2. Composite materials for structural components.
3. Electronic control of engine transmission systems.
4. Simulation, including real time simulation for condition monitoring.
5. Engine component research - turbochargers, valve gear, combustion systems.

Enquiries should be addressed to:

Prof. F. J. Wallace - School of Mechanical Engineering or

Prof. B. Harris - School of Materials Science at The University of Bath, Bath, BA2 7AY

PRS

Planning Research & Systems plc (PRS) is the leading source of automotive vehicle and component data worldwide, offering some 35 services and products annually.

NEW PRODUCTS

- Technology Tracking**
A completely new service from PRS AUTOMOTIVE NEWS SERVICE, covering technology news and developments in the following categories: Drivetrain • Chassis • Body • Electronics • Materials • Manufacturing Technology • Fuel • Noise Control • Safety • Daily updated - available in hardcopy, on-line or disc: Price £400 for 50 weekly issues.
- Automotive Powertrain in West Europe**
This study is a complete market and technology analysis of powertrain component usage in West Europe. Components covered: cylinders • turbochargers • valves • fuel systems • camshafts • emission equipment • ignition systems • engine management systems • gearboxes • transmission type. Forecast to 1991: Price £975

PRS Consultancy Group Plc

ENGLAND: Premier House, 44-48 Dover Street, London W1R 3NF, Tel (01) 489 1635, Fax (01) 429 6221

USA: PO Box 1801, Darien, Connecticut 06820, Tel (203) 656 1585, Fax (203) 655 1171

JAPAN: Azabudai Uni-House 104, 1-1-20 Azabudai, Minato-ku, Tokyo 106, Tel (03) 582 0896, Fax (03) 582 2858

SECTION IV

FINANCIAL TIMES
SURVEY

Although surprisingly unaffected by the Gulf war, the Emirates are now much more concerned at its

possible spread and the impact of Iranian propaganda. But, says Michael Field, current preoccupations also underline the need for evolution, long term, towards a modern nation state

The challenge of change

ONE HAS very little sense in the United Arab Emirates of being close to a war. Occasionally in the last year walls of smoke have been visible off Dubai, when the Iraqis or Iranians have hit tankers near the coast, and a succession of rocket-damaged vessels is repaired in the state's drydock.

Otherwise, all seems normal. There have been no Iranian attacks on UAE territory as there have been on Kuwait, and no terrorist outrages. Dubai has a large Iranian immigrant population, does a large amount of trade with Iran, and handles several flights, full of shoppers, coming from Tehran or Shiraz every day. In both Dubai and Abu Dhabi, the atmosphere is one of continuing bustle and moderate prosperity.

Where the war has an effect is in people's minds. "It has taken the sleep out of our eyes," a Bahraini sheikh said recently. His words could go for the rulers of the UAE as well.

The war is felt to be more dangerous than it was a year ago. Iraqi attacks on tankers are happening closer to the mouth of the Gulf, and so Iranian reprisals are taking place in the same area. The American Navy has arrived in the Gulf and the Russians are showing a growing interest in the

region. In the early years of the war, the Arabian peninsular states were happy to let two potentially hostile neighbours fight each other to a standstill; now they are afraid that "something might go wrong" and that they might become involved in the war themselves. They want the fighting to stop.

At the meeting in Riyadh last December of the Gulf Co-operation Council, which groups Saudi Arabia, Kuwait, Bahrain, Qatar, the UAE and Oman, it was decided that Sheikh Zayed, the President of the UAE and ruler of Abu Dhabi, should take the lead in trying to improve relations with Iran.

Along with Oman, the UAE is the only GCC country that has full diplomatic relations with Iran. It not only has the advantages of Dubai's trade; it is further from the scene of the land conflict and has given much less support to Iraq than had Kuwait and Saudi Arabia. It also has a negligible population of Shia Moslems. The Shias, members of the unorthodox, mystical sect in Islam, are the establishment in Iran and the fact that Bahrain, Saudi Arabia and Kuwait all have substantial Shia communi-



Sheikh Zayed bin Sultan al Nahyan, ruler of Abu Dhabi and President of the UAE, examining an Egyptian-built automatic rifle, presented to him by President Hosni Mubarak of Egypt, during his visit to Cairo earlier this month to cement ties between the two countries. UAE was the first Arab state to renew diplomatic relations with Egypt after last November's Arab summit in Amman.

United Arab Emirates

ties is an irritant in their relations with the Islamic Republic. So far, there have been no obvious results from the UAE/GCC initiative, and it seems probable that Iran will concentrate on trying to divide the Emirates and Oman from the rest of the council - mainly through trying to develop separate discussions with the different members.

While the intermittent contacts continue, the UAE rulers worry about Iranian propaganda. Iran's broadcasts are beamed mainly at the northern Arabian states, but they can be listened to in the UAE and parts of their message could apply to that country. They accuse the rulers of extravagance, failure to promote people who are not members of their families, ineffectiveness over Palestine, and suppression of free speech.

Iranian influence has been behind the growth of fundamentalist Islamic sentiment in the region. This spread rapidly among the young in the UAE earlier in the 1980s, but now that

people have become disenchanted with Iranian politics, it seems to be either static or waning. The reform societies, which propagate Islamic social practices, seem less active and, at the UAE university, the Islamic tendency is not as influential in the students' union as it used to be.

To encourage the obiting of misguided zeal, the Ministry of Education has been weeding out teachers who have shown too great religious enthusiasm. A committee has been editing all text books to make them less Islamic; the revised versions should come into circulation at the beginning of the new academic year in the autumn.

Recently, an edict was reissued to remind preachers that they must have their sermons passed by the Ministry of Religious Endowments and then must not deviate from the approved texts.

To counter the direct Iranian threat and the possibility of subversive activity, Abu Dhabi and Dubai, like the other Arabian oil states, in the last two or three

years have been channeling 40 to 50 per cent of their oil revenues to security and military spending.

Iran, the war and Islamic fundamentalism make up only one of two broad issues which preoccupy the people of the UAE at present; the other is the state of the federation itself.

In recent years, Abu Dhabi and Dubai have seemed to be going their separate ways. They have always pursued completely separate oil policies; Dubai refuses utterly to co-operate with any production allocation assigned to the UAE at meetings of the Organisation of Petroleum Exporting Countries, and it sells its oil at open-market prices. The same independence applies to military purchasing, although officially the forces in Abu Dhabi and Dubai are part of the same army.

Where the states have given the impression of greater independence recently has been in such matters as Dubai's creation of its own airline, Emirates Air,

their different responses to the coup d'état in Sharjah last summer, and in the ill-will engendered by Dubai's handling of some 90 per cent of the imports of the federation - which last year caused Abu Dhabi to announce that in future its own imports must come through its own port. This edict has not been enforced.

At the same time, the main federal institutions seem to have become weaker. Since Sheikh Rashid, the ruler of Dubai and Federal Prime Minister, became incapacitated by a series of strokes in the early 1980s, the Federation has lacked an official head of government and without a strong person committed to promoting its interests, the federal government machine has gone into decline. Several Ministerial posts are vacant and are filled on a *de facto* basis by under-secretaries.

In the last four years, the federal budgets have been announced late. In 1986 and 1987 there were no real budgets at all - just monthly grants to mini-

CONTENTS

Politics: uneasy compromise in Sharjah	1	treatment and tourism	3
Oil: prices under pressure	2	Banking: decrees set interest rates	
Economy: prosperity holds up		Tourism: exuberant places	
Soviet relations: lure of trade,		Emirates: a successful airline	4

tries based on their previous year's allocations, with the arrangement being given a certain formality in the publication of a budget near the end of the financial year.

Officially, the federal administration runs all aspects of government apart from Abu Dhabi's and Dubai's internal economic development, but, in practice, the two leading Emirates now run all their own affairs and deduct the cost from their federal budget contributions.

As the Government has weakened, so have some of the federal agencies. The Emirates General Petroleum Corporation, which was formed in 1981 to take over most oil products' distribution in the northern states, is having its market position eaten into by the major oil companies, a Dubai Government joint venture and the Abu Dhabi National Oil Company.

The one federal institution which seems to increase in stature is the UAE university at Al Ain, in Eastern Abu Dhabi.

The problems of the federation cause much hand-wringing among the UAE middle classes.

This section of society expands every year as more young people come out of high school and university. The young have been taught to regard themselves as citizens of the UAE and they look for greater unity among the Emirates and a more institutionalised system of government. In the Emirates north of Dubai, where there are not significant amounts of oil, a stronger federal government is also seen as a means of the states getting more money.

The middle classes support their rulers as individuals. Sheikh Zayed of Abu Dhabi is enormously popular, and Sheikh Maktoum bin Rashid, the eldest son of the incapacitated ruler of Dubai, is increasingly popular. Maktoum has grown much in prestige in the last two or three years. He had the reputation for generosity, which is an important quality in the Middle East, and he is interesting himself more than he used to do in government.

What the bourgeois intelligentsia does not like is the system of government. It is not so much that its members object to the sheikhs being privileged and powerful. It is more a matter of their no longer seeing themselves as clients or subjects of a few individuals and wanting, instead, to be citizens of a nation state.

They argue that, while the traditional fragmented system of government continues, the UAE will never be strong. It will be unable to face a crisis.

These arguments are only partly valid.

Even if Abu Dhabi and Dubai have been going their own ways in recent years, they are flourishing, which makes calls for more co-ordinated policies seem pointless. Greater central control of their economies would probably stultify Dubai without benefiting Abu Dhabi.

In politics, the day-to-day individualism of the Emirates does not mean that the rulers cannot unite when they have to do so. Despite their different views on the issue, last summer they managed to act together to resolve the coup d'état in Sharjah, restoring the ruler to his post and appointing the man who tried to oust him as his deputy.

The sheikhs are much less upset than the middle classes by the different policies their Emirates pursue. They may quarrel but they understand each other and accept each other's prerogatives.

At a personal level, they are friends. Their relationships are developed by their continual meetings at camel races and other social events.

Where the complaints and anxieties of the bourgeoisie may be justified is in the long term. Because the Emirates' system of government - and the system of government in other Arabian peninsular countries - does not seem able to evolve as society changes around it, it is slowly becoming less representative of its people.

In particular, it seems unable to accommodate elected or appointed national assemblies. Before its recent sessions, the Federal National Council of the UAE went for two years without being summoned, and, when members were appointed before the latest meetings, it was noticed that three of the most vocal personalities in the old council had been left out.

The issue of federal v state government in the UAE is part of the broad issue of the workings of Arabian peninsular government. For the time being, traditional government - state government in the UAE - works well, and the rulers are popular, but for the next decade the ruling families have to face the challenge of transferring the people's loyalty from themselves to the nation state.



The National Bank of Dubai Ltd.

Service to match our name

In our third decade of service to the Middle East we continue to offer the same standards of professionalism and dedication to our clients' interests as those we established when our charter was granted.

These same standards are now available in the heart of London, just two minutes walk from Harrods. Our London branch offers a complete service for banking transactions with all principal countries in the World.

Call in next time you're in London and find out why we're a growing name in the banking world.

بنك دبي الوطني في المجدد
THE NATIONAL BANK OF DUBAI LTD.



Head Office:
P.O. Box 777, Dubai, U.A.E.
Telephone: 222241/5-222255/8
Cables: 'NATIONAL' Dubai
Telex: 45421 NATNAL BM

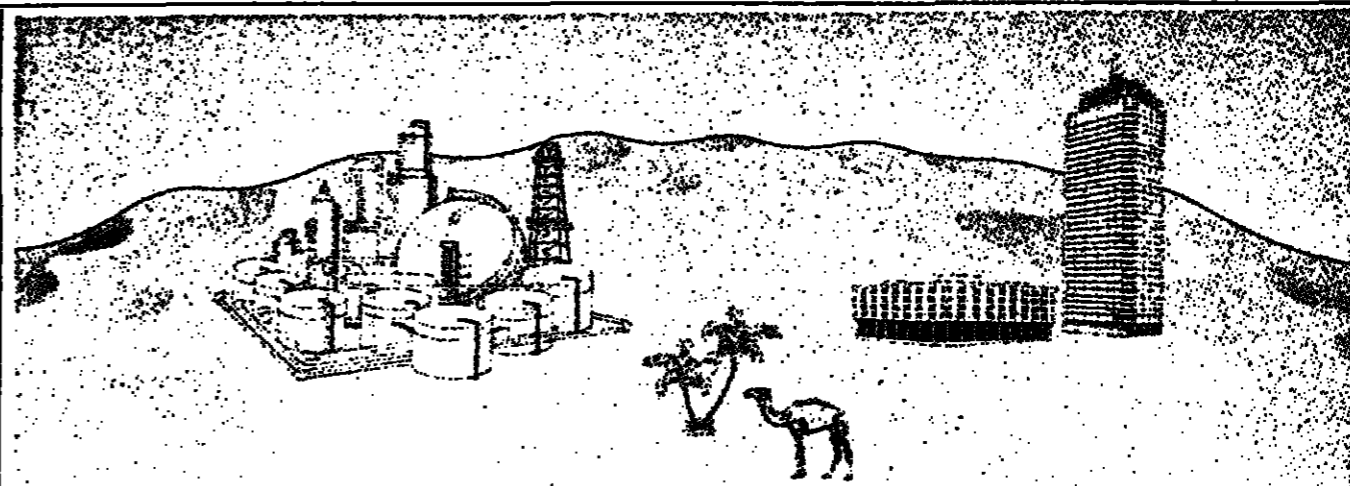
London Branch:
207 Sloane Street
London SW1X 9QX
Telephone: 01 245 6923
Telex: 269713

Established 1963 under charter granted by
His Highness Sheikh Rashid bin Saeed Al Maktoum,
Ruler of Dubai and its Dependencies.

Authorized Capital Dh. 1,000,000,000

Paid Up Capital Dh. 861,769,000

Reserves Dh. 1,830,884,000



Explore

If you're considering business in the Arab world, talk to The British Bank of the Middle East first.

As part of the HongkongBank group, we have over a century's international banking experience in opening up new markets.

Our Business Profiles on Arab countries, which come as a direct result of intimate market knowledge, are only one example of the many specialist services that we provide.

Today, with 1,300 offices in more than 55 countries, concentrated in Asia, the Middle East, Europe and the Americas, the HongkongBank group gives you access to a complete range of financial services. The group's presence also extends to Saudi Arabia and Egypt, through its associate banks, The Saudi British Bank and Hongkong Egyptian Bank S.A.E.

For a copy of the Business Profile that interests you, write to us at Box 64 G.P.O., Hong Kong, or any branch of The British Bank of the Middle East.



The British Bank of the Middle East

Bahrain India Jordan
Lebanon Oman Qatar Switzerland
United Arab Emirates United Kingdom

member HongkongBank group

UNITED ARAB EMIRATES 2

Michael Field explains the background to last year's attempted coup d'état in Sharjah and the political tensions which still remain

Federal rulers impose uneasy compromise

MUCH THE most dramatic and important event to have occurred in the UAE in the last 12 months is the attempted coup d'état in Sharjah last June. Although no blood was shed and a compromise between the ruler, Sheikh Sultan bin Mohammed al-Qasbi, and his brother, Abdul-Aziz, who had organised the coup, was arranged in a matter of days, the problems that led to the coup have not been solved and the feeling in the Emirates is that the situation is unstable.

Of the protagonists in the coup, Sheikh Sultan at first sight is the model of a modern Gulf ruler. He has studied agriculture at Cairo University and received a doctorate from Exeter. In contrast, some of the other Gulf rulers are barely literate - literacy was not a very useful accomplishment in the society into which they were born but, as a group, they are wise and blessed with extraordinary memories and a flair for dealing with people.

Sultan bin Mohammed was made ruler of Sharjah in 1972, in preference to his elder brother Abdul-Aziz, precisely because his more modern qualifications seemed what Sharjah would be needing in the 1970s. The occasion of his succession was the aftermath of a short-lived, violent coup d'état in which a cousin had murdered the senior member of his immediate family, Sheikh Khaled bin Mohammed, who had been ruler since 1968.

Since he became ruler, Sultan has enhanced his academic reputation in some quarters by writing a history book in which he represents his ancestors in the early 19th century as strugglers against the British and the forerunners of modern liberation movements. The more conventional version of events is that they were the pirates whose raids on India-bound shipping were the original cause of Britain's entering the Gulf.

What has made Sultan controversial with some of his own countrymen, however, is not his interpretation of history but the economic problem that has beset Sharjah under his rule. The State was unlucky in that its first small oilfield in the 1970s suffered a very rapid decline in output, which undermined Sultan's enterprising attempt to develop Sharjah as an exceptionally liberal off-shore business centre.

In the last four years Sharjah

has suffered from the dispute over its lack of budget contributions to the Federation and the Federal Ministry of Electricity's failure to pay for the gas it has supplied. (see article below).

While this dispute has been in progress, the Sharjah Government has run up debts thought to total \$10m - which is much more than it would have received from its gas even if it had been paid. The economy of the Emirates has stagnated.

The business community has grown increasingly disenchanted with this poor performance. Not the least of the policies causing irritation was the ruler's banning of alcohol soon after developers had made a substantial investment in hotels. Sultan in recent years has been increasingly devout and his State is the only one in the UAE to be dry.

The man who tried to depose Sheikh Sultan last summer was his elder brother, Sheikh Abdul-Aziz, a person of a different stamp. Abdul-Aziz is a soldier and a businessman, a widely respected member of the Qasbi family. He trained at Mons, the British Officers' school and, before the UAE became independent in 1971, he served in the British-run defence force, the Trucial Oman Scouts. It was while he was in this unit that he became a friend of Sheikh Zayed, the ruler of Abu Dhabi.

In recent years Abdul-Aziz has been commander of Sharjah's Amiri Guard, a prominent businessman and President of his State's Chamber of Commerce.

The coup he mounted last year took place on the morning of June 16, when Sheikh Sultan was on holiday in Britain. Abdul-Aziz occupied the palace and the main Sharjah government offices with his troops. By the normal standards of coups it was a gentlemanly affair; no shots were fired, there were no arrests, and there was no interruption of communications between Sharjah and Dubai.

The first of the other Emirates and the world outside heard of the events was the broadcast of a letter, said to have been written by Sheikh Sultan, in which the ruler said that in spite of his having tried to budget wisely people had exploited the system and so his State had run into difficulties. He added that he wanted to further his education at Exeter and



Sheikh Sultan bin Mohammed al-Qasbi

so had decided to hand power to his brother, Abdul-Aziz. There followed a reply from Abdul-Aziz in which he accepted the reins of government and thanked his brother for the good

work he had done. In the days that followed Abdul-Aziz circulated in Sharjah two statements in which he detailed the serious state of the Emirates' finances and outlined his proposals for improving them.

From the start, it was clear that Abu Dhabi and Dubai were divided in their response to the coup. Abu Dhabi's radio broadcast Abdul-Aziz's statements in full. Dubai's ignored them totally. Immediately there was speculation that Abu Dhabi was behind the coup, and this has

decided.

Partly for this reason, Sheikh Sultan's relations with Sheikh Zayed of Abu Dhabi, the President of the Federation, have deteriorated. Early in 1987, at the Islamic summit in Kuwait, where he went as part of Sheikh Zayed's delegation, Sultan disagreed in public with the line being taken by his President. In his relations with foreign powers, Sultan has flirted with Iran. It is often said that he has an inflated sense of his own Emirate's importance.

To what extent these poor relations led Abu Dhabi to back Abdul-Aziz's coup is a matter of speculation. One school of thought suggests that Abu Dhabi was engaged actively in its planning, another that Abdul-Aziz approached the Abu Dhabi sheikhs, talked about his scheme and was told that if he could organise a transfer of power by coercion or voluntary means - he would receive Abu Dhabi's blessing.

Given Sheikh Zayed's commitment to the Federation, his pastness and his statesmanship, something towards the active end of this range of possibilities, seems the more probable Abu Dhabi response.

Dubai's view of the coup and of Sheikh Sultan was the opposite of Abu Dhabi's. Although traditionally Dubai and Sharjah had been commercial and political rivals, since the early 1980s their relations have been good. A border dispute was settled amicably, a few years ago, and a gas contract, on terms favourable to Dubai, has been a major source of Sharjah's revenue.

When he heard of the coup, Sheikh Mohammed bin Rashid al-Maktoum, the most assertive of the brothers who now run Dubai, flew home immediately from England, where he had gone for part of the flat racing season.

He then went with his brother, Hamdan, to Abu Dhabi and argued forcefully that the coup should be reversed. His contention was that any support for a coup d'état in any one Emirate was a dangerous game which might be copied elsewhere. The conspiracy, deposition and murder which stains the histories of the ruling families of the region, earlier this century, has made present members of the families preoccupied with legitimate suc-

cession.

Most of the members of the Federal Supreme Council, composed of the rulers of the seven UAE states, then gathered in the oasis of Al Ain in Abu Dhabi to work out a compromise. In this Sheikh Zayed took a leading role, responding to the urging of Saudi Arabia.

Sheikh Abdul-Aziz bin Mohammed, meanwhile, remained with his troops in Sharjah, while Sheikh Sultan, who had returned from England at the same time as Sheikh Mohammed bin Rashid, installed himself in Dubai, where he received well-wishers and assured everyone that he was still ruler. Those who saw him say he looked a very worried man. The two only went to Al Ain when a compromise had been agreed.

In essence it was decided that Sheikh Sultan should remain ruler of Sharjah and that Abdul-Aziz should be deputy ruler and Crown Prince.

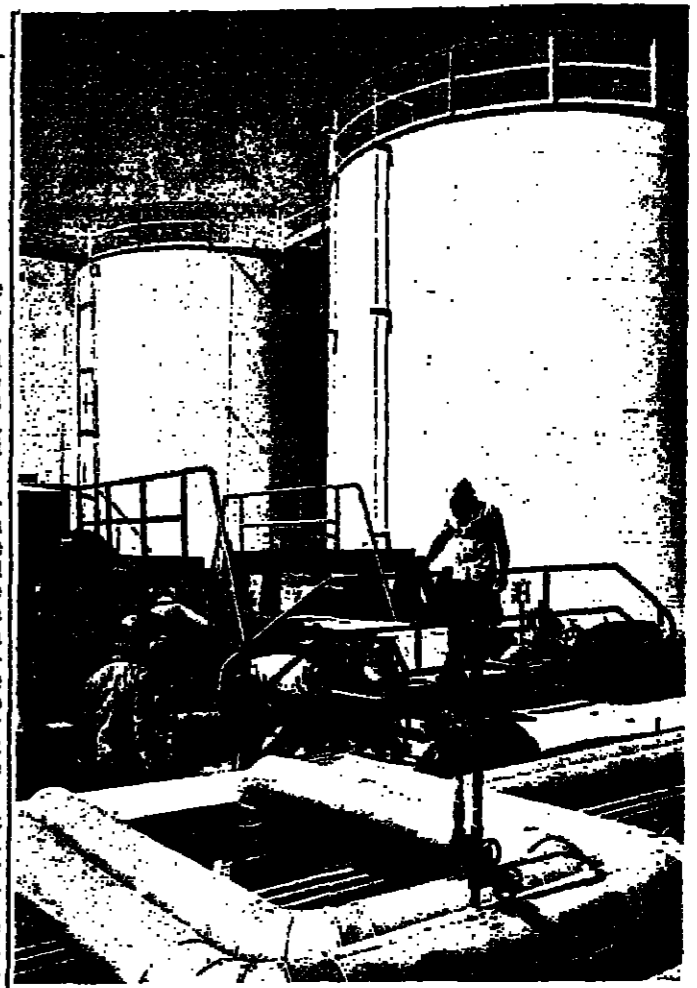
In the nine months that have followed these events, Sharjah has been quiet but the situation is not felt to be stable. Sheikh Sultan and Sheikh Abdul-Aziz are not talking to each other. The Amiri Guard has been transferred to the command of a cousin, Sheikh Faisal, but Abdul-Aziz still has retainers of his own.

It is assumed that if Abdul-Aziz can muster the support of the other members of his family he will force Sultan to step aside. For his part Sultan does not leave the Emirates.

The consensus in the UAE is that the episode cannot have strengthened the Federation and this is probably correct.

Yet last summer, the Supreme Council of Rulers met more times in a week than it had done in the previous five years. The rulers face an extremely difficult problem. They have worked out a compromise and imposed it on the people involved. Even if the Federation is not a tight unit, with much control on its members' actions, in a day-to-day sense what happened last summer shows that in a crisis, the rulers still work together.

Michael Field



BP Middle East's new oil blending and packaging plant at Jebel Ali Port, Dubai, constructed by the Costain Dubai company, a joint venture between Costain International and H E Humaid bin Drai. Project consultant was Ewhank Process Process and Industrial Engineering

Oil production

Prices under pressure

SINCE THE beginning of this year, Abu Dhabi has radically cut oil production. Last year, its output averaged 1.07m barrels a day, hitting a peak of 1.55m b/d in August. This year, so far, it has run at only 0.7m b/d.

The cut is not in response to any alteration in the quota for the UAE agreed by the Organisation of Petroleum Exporting Countries. At the Opec meeting last December, the UAE allocation remained unchanged at 0.945m b/d, out of a total for organisation members, excluding Iraq, of 15.06m b/d.

What has changed is the state of the market. With open market prices threatening to fall to around \$14 in the spring, Abu Dhabi is now much more worried than it was last year about defending the Opec average price of \$18.

While other members have been giving discounts, Abu Dhabi at present is sticking to official prices. But this policy is understood to be being debated in the Government and it may change at any moment.

Abu Dhabi's willingness to breach its production quota in last year's stronger market was caused by its exasperation with Dubai's longstanding refusal to co-operate with Opec.

Although it is technically the UAE as a whole, and not just Abu Dhabi that is a member of Opec and although Dr Mana Saeed al-Otaiba officially is the UAE Oil Minister, Dubai has never taken its share agreed for the UAE at Opec. If the UAE has complied with an Opec quota, the entire sacrifice has always been borne by Abu Dhabi.

Last year, Dubai was unmoved even by visits of ministers from other Opec countries - it maintained that its oil production is its own business.

Its output in 1987 ran at 399,000 b/d, the bulk of it being sold on the open market. Almost all of this comes from the Fatah group of offshore fields, operated by Conoco.

Onshore the Margam field, where the licensee is an Atlantic Richfield/Britoil company, produces about 17,000 b/d of very light crude or condensate.

In Opec terms the other northern emirates' production is insignificant. Sharjah, with its onshore partner Amoco, produces 45,000 b/d of condensate from the Sajsa field and about 6,000 b/d of oil from the offshore Mubarak

field, which it shares with Iran. In its first year or so onstream, in the 1970s, Mubarak produced 80,000 b/d, but it is a difficult field and production rapidly declined.

The most northerly of the emirates, Ras al Khaimah produces 5,000 b/d of condensate from a profitable offshore field developed by Wintershall, Neste of Finland and the Overseas Petroleum Investment Corporation of Taiwan. Like much of the condensate produced in the UAE its output is sold to South Korea.

In only one northern UAE producing area are the large reserves. The Fatah fields are reckoned to contain about 2bn barrels; they perform well and should be good for another 20 years.

The Sajsa field in Sharjah may have 250m-300m barrels of recoverable condensate, mixed with gas in the ratio of one barrel to 10,000 cubic feet.

All of the other northern fields have minor reserves or are disappointing performers. The Margam field in Dubai was expensive to develop but is difficult to produce. Its gas is re-injected but does not stay in the reservoir. The great bulk of the UAE's oil reserves are in Abu Dhabi. Onshore the main fields, Bu Hassa, Bab and Aash, are controlled by the Abu Dhabi National Oil Company and the Abu Dhabi Petroleum Company, the former concessionaire, which is owned by BP, Shell, Total, Exxon and Mobil. Offshore the Umm Shaif and Zakum fields are run by Abnoco with BP, Total and Japanese companies.

The traditional figure for the state's proven commercial recoverable reserves was 23bn barrels, but recently there have been big upwards revisions of reserves in other Opec states - particularly Iran, Iraq, Kuwait and Venezuela - and last year Abu Dhabi joined this trend. Its reserves estimates have been increased to 95bn barrels.

The fashion for upwards revision is partly politically motivated - states with large reserves can claim bigger Opec production quotas. The nominal justification comes from big recent improvements in production technology, which are making it possible worldwide to recover more than the traditional 30 per cent of the oil in place.

Michael Field

Sharjah gas dispute

A major problem

THE MAJOR problem of UAE politics - the government and finance of the emirate of Sharjah - revolves around the gas production of one hydrocarbon field, Sajsa.

In simple terms the problem is that the because Sharjah has not paid sufficient money into the federal treasury, the state's gas as a production partner, Amoco, has not been paid for gas deliveries to federally-run power stations and Amoco in turn has been unable to pay the Sharjah government its share of revenues.

The Sajsa field was discovered at the beginning of the 1960s, by Chicago-based Amoco. The field is operated by Amoco and until the end of January this year, when the Sharjah government bought a 60 per cent stake, the condensate and gas produced was owned entirely by the US company.

The 45,000 barrels a day of condensate is exported, being sold mostly to third parties, and the 300m cubic feet a day of gas is delivered under separate contracts to the Gas Company (Dugas), which takes rather more than half, and the Emirates General Petroleum Company (EGPC). The federal company in turn delivers a minor amount of gas to cement plants and the rest to the Ministry of Electricity, for power generation.

The terms of the contract are very different. Dubai, which has its own treatment plant and large supplies from its offshore fields, is happy to take unprocessed, sulphurous gas in whatever fluctuating quantities suit Amoco. EGPC's contract is the reverse - the gas has to be purified to a high standard and quantities are at EGPC's discretion.

The price of the Dubai contract, signed in May 1985, is \$1.25 per million BTU and the EGPC contract, signed in 1982, is for \$1.50 per million BTU. The consensus in the UAE oil industry is that Dubai's price does a bit more than reflect its tough terms; it may be slightly related to the settlement of a Sharjah/Dubai border dispute that was agreed around the time it was signed.

From 1985 the price of the Dubai contract has ranked with the federal institutions.

Deliveries of gas to EGPC started November 1983 and the dispute between the corporation and Amoco began soon afterwards. EGPC paid \$2m-3m for sales of gas to cement plants, but

has paid nothing at all for gas delivered to the Ministry of Electricity because it has not been paid itself. The reason is that the Sharjah state government, in the eyes of Abu Dhabi and the federal government, has not paid a proper amount of its revenues into the federal treasury, which has led them to treat its gas as a budgetary contribution.

To date, EGPC owes Amoco \$45m plus interest - according to the American company. If this were paid 80 per cent would go to the Sharjah government in taxes and royalties.

In June 1985 Amoco began litigation and in the middle of last month the International Chamber of Commerce in Paris awarded it \$38m - the sum due the last time EGPC and Amoco held talks, in September 1986.

The arbitration of the chamber is supposed to be binding on the parties but it does not seem likely that EGPC will be able to pay within the 30 days stipulated. If it fails, it is assumed that Amoco will stop its gas deliveries to EGPC and pursue its claim through the courts. Amoco has twice before cut its deliveries, in May and October last year, and resigned them when it had misleading indications that it was likely to be paid.

It is recognised by everyone involved that ultimately the solution to the payments problem has to be political - litigation will do no more than increase the pressure in this direction. Ideally, Sharjah would offer to make some regular payments to the federal government, the offer would be accepted by the Government and by Abu Dhabi, which at present pays most of the federal budget, and then in turn payments for gas would move from the Ministry of Electricity to EGPC to Amoco and the Sharjah state government.

It is said that Sharjah has recently made an offer of budget payments though this cannot be confirmed. Given the delicate state of the Emirates' internal politics, the reluctance of the ruler to give way on the issue and pride of all the parties involved, it seems likely that a solution will not be arranged quickly.

Michael Field

ARCO
BLACK & DECKER
BRITISH PETROLEUM
CLEVELAND BRIDGE
HALLIBURTON
TOYO MENKA
McDERMOTT
SCHLUMBERGER
SHELL
UNION CARBIDE
YORK INTERNATIONAL

What do these international companies know about Dubai that you don't?

They know that Dubai's Jebel Ali Free Zone has introduced exciting trade freedoms and benefits, enabling companies to set up trading and industrial bases easier in the Middle East.

Just look at these benefits—unique to Jebel Ali.

- 100% foreign ownership.
- Unlimited transfer of profit and capital.
- No corporate taxes for a minimum of 15 years.

- No personal income taxes.
- No import duties/export taxes.
- Unlimited cheap energy.

They also know that with superb facilities including an extensive infrastructure, state-of-the-art communications, accommodation, hotels, hospitals, security and every modern amenity, Jebel Ali is a unique opportunity for world markets.

For more information contact



سلطة المنطقة الحرة لجبل علي
Jebel Ali Free Zone Authority

Marketing Dept. No. 45,
Jebel Ali Free Zone Authority, P.O. Box 3258,
Dubai, United Arab Emirates. Tel: Jebel Ali 56578
Telex: 46580 TPAJA EM, Cable: PAJADUB, U.A.E.
Marketing Dept. No. 01,
P.O. Box 803, Iselin, New Jersey 08830, USA.

THE PRIDE OF DUBAI

APR

مكتب أمنة الوطن

Triple Award Winning DUTY FREE

UNITED ARAB EMIRATES 4

Banking

Interest by decree

AT LAST, it seems that the legality of compound interest in Abu Dhabi, which in the past two years has been a major anxiety of bankers in the state, has been acknowledged.

Even in its final stages, resolution of the issue has been fraught with contradictions. Last July, Commercial Banking Decree No 3 of 1987, signed by Sheikh Zayed, the ruler, stated that in the event of a dispute over a loan, the rate of interest agreed in the original contract would apply up to the time of a suit being filed. Thereafter the rate would be 9 per cent flat. This seemed clearly, but indirectly, to endorse the principle of compound interest, assuming that had been part of the original contract.

Two months later, in September, was published Commercial Banking Decree No 4, which by chance was signed by the Crown Prince, Sheikh Khalifa bin Zayed. This stated that in no case should interest exceed 50 per cent of principal, which seemed likely to cause enormous complications with overdrafts, which are a very popular form of business finance in all the Arabian Peninsula oil states.

Who exactly was behind this second decree, and what his or her motives were, is not clear. But in the classic Arabian way, which seeks compromise and tries to avoid over-ruling any person's decision, it has come to be accepted that the first law applies up to the date of judgment of a case and the second between judgment and settlement, in which time interest charges on the sum outstanding.

At the same time instructions have been given that banking cases should go to the civil rather than the Shariah (Islamic) courts. These instructions are essential to the working of the new rules, because Shariah law, which condemns interest as usury, is based on the Quran, the word of God as recorded by the prophet Mohammed, and it cannot be altered by Commercial Banking Decree.

For all the banks in Abu Dhabi

the new dispensation is a relief. Since the recession began in 1984, litigation has been difficult for them. In isolated cases, the Shariah courts, which have extremely informal procedures, had refused utterly to acknowledge the legality of even simple interest, in spite of a Federal Supreme Court decision in 1981 that it was reasonable for banks to charge up to 9 per cent to personal clients and 12 per cent to corporate clients. And in almost every case the courts had declared compound interest to be illegal.

This used to discourage banks from taking defaulting borrowers to court, because some companies, which had longstanding overdrafts, would have been able to claim compound interest going back many years. In a few cases, it led to clients actually suing their banks for repayment of interest. The most serious instance of this involved a contractor, Cicon, suing Grindlays and Paribas for compound interest dating from 1986 and 1974.

There are some thousands of banking cases pending in Abu Dhabi which should now start to be resolved, either through their being brought before the courts or through borrowers deciding that it would be expedient to settle. Several of the Abu Dhabi banks have large sums of outstanding interest against which they have already made provisions but which they now have a good chance of being able to collect.

All of the banks are still being very cautious in their lending, especially to members of the ruling family, whom it is difficult for them to sue.

The one problem that most of the Abu Dhabi (and Dubai) banks do not have is large exposure to Latin American debt - unlike some of the Bahraini-registered banks. The exception, ironically, is the National Bank of Abu Dhabi, which traditionally has been by far the biggest and strongest of the locally-owned banks.

NBAD has not yet released its 1987 results, but it is thought that they will show that its operations at home have done well while it has had to make

major provisions to cover loans to Latin America and the losses of its subsidiary in Washington.

In Dubai, there has been no equivalent of the compound interest issue. The courts in the state have always acknowledged the legality of interest and when they become involved in banking disputes they concentrate on trying to reconcile the parties. Dubai's major banking problems were resolved several years ago when the Union Bank of the Middle East and the Dubai Bank were merged and some of the other local banks recapitalised.

Since then, the banks in the state have been trying to recover or reschedule their difficult loans. Most of the borrowers that have had problems have been small companies. The bigger of the two major firms that have rescheduled debts have been Galadari Brothers, which has rescheduled payment of \$158m owed to two separate consortia and now has to renegotiate some \$100m owed to its former subsidiary, the Dubai Bank. The other firm is the Al Shiraawi Group, which is still negotiating the rescheduling of a debt of under \$100m.

It is felt in Dubai that some of the banks have not made realistic provisions to cover their doubtful

	Total assets			Loans/Advances			Customer Deposits			Shareholders Equity			Provisions			Net Profits		
	1985	1986	1987	1985	1986	1987	1985	1986	1987	1985	1986	1987	1985	1986	1987	1985	1986	1987
Abu Dhabi Commercial Bank	5,385	7,238	n.a.	3,234	4,054	n.a.	3,460	3,410	n.a.	1,258	1,199	n.a.	16	n.a.	(177)	(58)	n.a.	n.a.
Bank of Credit & Commerce (Emirates)	4,193	4,582	n.a.	2,032	2,655	n.a.	3,050	3,565	n.a.	307	323	n.a.	11	23	n.a.	65	63	n.a.
Bank of Oman	6,785	6,808	n.a.	3,258	3,408	n.a.	4,435	4,859	n.a.	559	554	n.a.	46	80	n.a.	40	55	n.a.
Commercial Bank of Dubai	1,108	1,104	1,192	557	574	635	605	800	650	261	265	289	4	8	8	20	18	18
Middle East Bank	2,701	2,701	n.a.	1,818	1,797	n.a.	2,052	2,006	n.a.	161	261	n.a.	80	19	n.a.	(53)	14	n.a.
National Bank of Abu Dhabi	20,737	19,521	n.a.	10,448	6,164	n.a.	14,524	12,980	n.a.	1,853	1,850	n.a.	206	164	n.a.	13	59	n.a.
National Bank of Dubai	18,844	20,198	21,021	1,235	1,292	1,510	15,975	16,805	17,574	2,346	2,404	2,780	35	28	20	905	620	712
National Bank of Ras Al Khaimah	604	599	602	227	227	205	412	340	300	115	117	121	7	11	6	6	7	13
Bank of Sharjah	2,336	2,336	n.a.	1,585	1,754	n.a.	1,187	1,441	n.a.	337	357	n.a.	34	33	n.a.	29	20	n.a.
Union Bank of the Middle East	5,880	4,968	n.a.	2,139	2,358	n.a.	3,474	3,528	n.a.	500	523	n.a.	40	n.a.	n.a.	23	n.a.	n.a.

Reported in millions of Dirhams. n.a. = Not Available

loans. There are a few institutions which have large assets but modest profits, which suggests that they have loans still in their balance sheets which are not performing. After a year or so in which several banks have not been paying dividends, it is suggested that it may be premature for these institutions to restart dividend payments now.

These are fairly minor criticisms. The UAE Central Bank, which at the beginning of the 1980s had little authority, now

conducts detailed audits of the banks' positions, and if it is satisfied with a bank, then it is said that its provisions must be at least moderately realistic.

The only place in the UAE where there are potentially frightening skeletons in banks' cupboards is Sharjah, where the two locally incorporated banks are thought to be owed around \$1bn by the state government. This, though, is a political problem and it will be resolved if and when Sharjah sorts out its financial relations with the federal government.

What the banking pictures in all the emirates have in common is a recent switch to personal lending. Since there is little prospect of a boom in the construction of new housing, the change is mainly something that has been forced on the banks, but personal lending and consumer finance do have the advantages of spreading risks and commanding high interest rates.

The main disadvantage is that a borrower may leave the country without repaying his debt, though this possibility can be countered by a bank taking guarantees from his friends. And in a country with a population of a little over a million the size of the market is limited.

Even so, competition between the banks has been sufficient for interest rates on personal loans to have fallen from 18 per cent to as little as 12 per cent for favoured clients - this being equivalent to a poor corporate rate.

The customer, though, has to be careful to avoid what a managing director recently described as "little gains". These involve what seems a reasonable rate of interest being made much more expensive by its being charged at a flat rate on the borrowed amount during every year of the loan, or the whole interest amount being charged as soon as the loan agreement is signed.

Figures in the above table are incorrect because of rounding.

Michael Field

Tourism

Colourful, exuberant places

THE AUTHORITIES in Abu Dhabi and Dubai may not believe it, but I love the UAE. In surveys like this, one has to write about personalities or other sensitive topics, such as the events in Sharjah last summer, which in Arabian society are never mentioned publicly. The reason is that these subjects are important, and it would be wrong to apply one set of rules to the industrialised countries and another softer set to the Middle East.

The articles are in no sense meant as criticism - I find both people and the politics of the UAE fascinating, albeit different from Europe.

But it is not just the society that makes me miss no opportunity to go to the Emirates. Abu Dhabi and Dubai are colourful and, by Middle Eastern standards, exuberant places, by far the most physically attractive of the Gulf States.

Dubai has its creek: tall, modern buildings on one side, mostly traditional/Persian structures on the other, the shores lined three or four deep in places with Arab and Indian dhows. The swimming blue water in between is crisscrossed by Almas, little passenger launches crisscrossed with Indian and Pakistani in white pyjamas (immigrants from the sub continent make up about 70 per cent of Dubai's population). The scene is busy, oriental, and highly commercial.

To walk along the banks of the creek is to watch the commerce of the Indian Ocean. The wharves are piled with sacks of Thai rice, gunny bags of onions labelled as Iranian (on the other side actually from Iran), huge cartons containing unit air conditioners or refrigerators, Japanese cars, fish traps in their squashed, folded form, sacks of clothes, coffee and cardamom seeds - things which have a good old-fashioned look when one sees them in bulk.

Abu Dhabi is quite different. It is the state in the Arabian peninsula that in 20 years has changed itself from a small group of Bedouin (palm fronds) huts to something that looks very like Miami Beach. There are plenty of skyscrapers in reflecting glass - blue and gold are the favourite colours. A Bahraini friend of mine describes the style of architecture as "Abu Dhabi galore".

Along the five kilometres of glittering, curved beach (labeled "Corniche Road" on some signs) and other major streets are lawns, flowerbeds, fountains, palm trees, clematis and bougainvillea - all of them kept alive by water desalinated from the sea.

Abu Dhabi is a country which has decided to spend its money and enjoy it. It is quite unlike Kuwait, whose canny population works on what a diplomat described recently as the principle that "If one cannot make

money from something it probably isn't worth doing."

In both Abu Dhabi and Dubai, the atmosphere is relaxed. The ruling families have a tradition of being welcoming to foreigners. Alcohol is served in the hotels, women can drive, and men and women can bathe together on the beaches - all of which is illegal in Saudi Arabia. In most of the other Arabian oil states, foreigners feel oppressed. In the UAE, where

they form a good 80 per cent of the population, they seem to be welcomed. If one walks to the Abu Dhabi Corniche on a Thursday evening one sees hundreds of little family groups of Indians, Pakistanis, Egyptians, Palestinians, as well as Abu Dhabi nationals, just sitting and enjoying the grass, or eating picnic. In other states, the immigrant has nowhere similar to go, and the atmosphere is such that they would probably feel happier to relax with their families at home.

Outside the two main cities, the towns of the UAE are less attractive but there are magnificent stretches of coast and desert. The Eastern coast of the country, made up of the Emirates of Fujairah and part of Sharjah, has palm fringed beaches backed by a range of blue mountains. It is only spilt by the vast amounts of litter - polythene bags and paper cups - that have been left on the beaches.

In the south of Abu Dhabi, on the border of Saudi Arabia, is the beginning of the Empty Quarter. In this desert, the biggest uninhabited stretch of land on earth, not a drop of rain may fall for a generation. As one drives towards the Liwa oases the last place of habitation before six hundred miles of towering sand dunes the road gradually becomes submerged in drifting sand. When the sky is grey and the wind whips up dust into the air one has the strong, and rather frightening feeling that one is entering a place that is totally hostile to man.

To go into this desert one needs a guide, a four-wheel drive vehicle and a big supply of water. One tells the police where one is intending to go, and for how long. Once one gets there, some success in hunting the most totally clean air and at night a panorama of the Milky Way.

The UAE is the only Gulf State that has potential as a tourist centre and it is the only state that is trying to attract tourists. Dubai particularly is having success in attracting tourists who are coming so far as fairly unenterprising, low spending package tourists who spend most of the time on the hotel beaches, which admittedly, are attractive and have excellent sporting facilities.

Dubai has recently invested in several parks, one of the world's most magnificent golf courses and horse and camel race tracks. In 1986, it sponsored the World Chess Olympiad which attracted most of the Grand Masters including Messrs. Kasparov and Karpov. A year later Sharjah sponsored the Cricket World Cup.

The Emirates' tourist appeal is enhanced by an almost total lack of crime and good weather - in the months of March, April, October and November the climate is perfect, though the summer is extremely hot and, in the three winter months, the weather can be overcast, cloudy and wet.

The hotels are superb. In Abu Dhabi the best are the magnificent Intercontinental and the much more friendly and informal Sheraton Hotel and Resort. In Dubai there are the Intercontinental, the Hilton and, some miles south of town, the luxurious Jebel Ali resort hotels.

Michael Field

"Emirates"

Airline success

PROFITS, PASSENGERS and controversy have all flocked to Dubai since the emirate started its own airline - known by the single word - Emirates - in October 1985.

"Emirates' success on the London route in particular sparked a barrage of loose allegations from rivals about Emirates' price cutting. In the ensuing heat, it was forgotten that Emirates does not - and did not need to - resort to undercutting to win passengers. It is the only airline offering a daily non-stop, daytime flight to and from London. Its main rivals, British Airways and British Caledonian (still operating separately on this route) either leave in the middle of the night or stop en route.

In the event, the new airline has grabbed 49 per cent of the traffic compared with 32 per cent for British Airways and British Caledonian combined.

The controversy - or that part of it which is rational - is a measure of Emirates' commercial success and its rivals' instinctive fear that Emirates is a more formidable competitor than was at first thought possible.

Dubai is an unusual phenomenon as far as air traffic is concerned. The Emirate, the second richest and arguably the most independent-minded of the UAE's seven emirates, (it can afford to be) has a population of some 500,000 out of the country's total of 1.6m. But despite its small population, it boasts the second busiest airport in the world in terms of transit passengers after Tokyo's Narita airport. In 1986, it received 1.55m transit passengers compared with Tokyo's 1.38m.

Part of the reason for this lies in the UAE's multiple definition of a "transit" passenger. This is not only someone moving through the airport from one flight to another. Many transit passengers come in on 7-day renewable visas issued by the sponsoring company. More and more international companies are using Dubai as their regional service base, and the number of temporary business visitors has increased out of all proportion to foreign residents.

At the same time, Dubai and the northern emirates in the words of Emirates' managing director, Mr Maurice Flanagan, "has possibly the highest ratio of

passengers to total population of any country in the world." Over 80 per cent of the UAE is made up of expatriates. But UAE nationals also travel regularly to Europe, US and Asia. Even among Asian labourers there is a steady influx and outflow.

Airline traffic on all routes among the 51 airlines using Dubai - excluding Emirates - was 18 per cent up last January compared with January 1987. Emirates itself has seen its passenger traffic rise by 66 per cent in this same period, and cargo traffic by 75 per cent.

Emirates owns and operates two Airbus A310-300 extended range aircraft and one Boeing 727. It leases one Airbus A300-B4 from PIA. It will shortly take delivery of two more aircraft - one Boeing 727 which it will own outright and one Airbus A300-600R, the financing of which is still being negotiated.

Emirates' routes now extend to London, Frankfurt and Istanbul in Europe, Cairo and Amman in the Middle East, and Karachi, Bombay, Delhi and Dacca in Asia. It is negotiating traffic rights in Singapore and will shortly start talks for similar rights in Manila.

It used to be thought that Emirates would need regional landing rights in Riyadh, Dhahran, Bahrain and Kuwait, to become economically viable. But according to Flanagan, "we now have as much growth as we can comfortably handle. We are not dependent on landing rights in neighbouring GCC countries." However, talks are going on with Saudi about landing rights in Riyadh.

Emirates was the brain child of Dubai's ruling family, in other words, the government. But once launched, the airline has to sink or swim on its own in competition with Gulf Air, owned by the governments of Abu Dhabi, (on behalf of the UAE), Bahrain, Oman and Qatar.

The creation of Emirates means that the UAE is now in the extraordinary position of having two national airlines. But Emirates can control its market in a way a consortium cannot - providing that Dubai remains an attractive transit point and regional business centre.

Robin Allen

Basic Facts

Official title: United Arab Emirates
Head of State: President HH Sheikh Zayed bin Sultan al Nahyan (ruler of Abu Dhabi)
Head of government: Vice-president HH Sheikh Rashid bin Said al Maktoum (ruler of Dubai)
Official language(s): Arabic (English often used in business)
Currency: Dirham (Dh) = 100 fils
Area: 90,559 sq km (including offshore islands)
Population: 1.62m (1987)
GDP per capita: \$13,385 (1986)
GDP real growth: -18.2 per cent (1986)
Labour force: 550,000* (1986)
Inflation: 2 per cent* (1986)
Oil reserves: 320m barrels (1987)* estimated figure

Holiday Inn
ABU DHABI

WHERE HOSPITALITY MEETS VALUE

Centrally situated in the heart of the business area, the Holiday Inn, Abu Dhabi, provides a full five-star service.

- 263 luxurious rooms including single, double and suites.
- Courtesy restaurant with the finest cuisine.
- Extensive banquet facilities.
- Coffee shop open 18 hours a day.
- 24 hour room service.
- Lounge bar with live entertainment.
- Business shopping.
- Roof-top pool with sun-lounge.
- Club with the latest disco music.
- Fitness room.
- Non-Smoking Rooms.
- Free Extended parking area.

As part of our service to the businessmen, the Holiday Inn will offer to oblige with the provision of sight visas (subject to adequate advance notice). We also provide an airport pick-up service.

A MEMBER OF THE AL FAHIM GROUP
OTHER HOLIDAY INN HOTELS IN THE GULF
JEDDAH | RABAT | KUWAIT | MANAMA | MUSCAT | SALALAH | YANBU
Box 3541 Abu Dhabi Tel: 23004 HOLIDAY INN Tel: 335335. Fax: 335766

Stay at the Dubai Metropolitan Hotel and get a Free Avis Rental Car. The car is yours at an extra cost, one day for every night booked, starting the morning after your arrival. What's more, mileage is unlimited and you'll have the comprehensive backup of Avis. Whether you stay at the Metropolitan Hotel for business or pleasure, you'll find having a car at your disposal the right idea. All you need to do is book the room. It's part of the Royal treatment.

Room N' Wheels rates:
Single Room Dh. 295
Twin or Double Room Dh. 380

Book online at www.dubaihotel.com or call 02-23004

DUBAI METROPOLITAN
P.O. Box 3627, Dubai, UAE
Tel: 97184-56666 Fax: 47240 DALJA EM

And, as always at DUBAL, every tonne was made to order.

dubal
Dubai Aluminium
- making a good product better

Dubai Aluminium Company (DUBAL)
P.O. Box 3627, Dubai, UAE.
Tel: 97184-56666 Tlx: 47240 DALJA EM

Drugs smuggling

Unstashing hash

In 1986 Dubai's anti-narcotics division seized 2,800 kgs of all types of drugs. The figure dropped to just over 1000 kgs last year but shows signs of increasing again. One recent haul - from under the floorboards of a Pakistani lorry searched at Dubai's commercial port - revealed 104kgs of hashish stashed under a 10,000 kg consignment of Basmati rice from Pakistan.

The largest concentration of hashish so far discovered was 2562 kgs, also in a container lorry, bound from Pakistan to Belgium and Holland. Heroin is smuggled by road in

hollowed-out fruit or vegetables or in cassette tapes from Lebanon, despite lorries having passed through up to six customs posts on their journey to the UAE. By contrast most opium and hashish comes by sea in containers loaded with anything from furniture to hollowed-out shaving brushes (also a favoured hiding place for heroin) and inside tubes of toothpaste.

Several arrests have been made, after both men and women, given heroin implants, arrive through Dubai's international airport. CID has plain clothes officers mingling with passengers in the arrivals terminal.

One kilo of heroin with a value equivalent to 15 or 20 kgs of hashish, will fetch \$4,000-\$5,000 in Pakistan. On the open market in the West, it will sell up to \$800,000 per kilo - "a greater return on investment than the oil business," remarked Colonel Abdul Aziz with more than a hint of irony.

For the first time over a Federal Ministry has published figures on the numbers of drugs-related arrests in the UAE. In 1981 a total of 255 people of all nationalities were arrested. By 1987 this had risen to 481. For a population of around 1.6m these figures are alarming enough.

But picking up individual carriers barely touches the problem, the Colonel remarked. "You have to hit the manufacturer. But you won't stop drug trafficking without a much better public service information programme."

Robin Allen